PRESENT STATE

OF

HUSBANDRY

IN

SCOTLAND.

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The Shire of EDINBURGH, or MID LOTHIAN.

THIS ſhire is ſo well known by the continual paſſage through it to the capital from every quarter, that it will not be neceſſary to give a general deſcription of the county. The cultivation and improvement of it will beſt appear by inveſtigating the improvements now carrying on by noblemen, gentlemen, and farmers, in a ſpirited and exemplary manner. I proceed with great pleaſure to mention particulars.

The eſtate of *Dalkeith*, belonging to the *Duke* of *Buccleugh*, deſerves the firſt place. I have had occaſion to mention that Nobleman's improvements in different parts of his extenſive property *; and here we meet him again with the ſame zeal to benefit his country, and to improve his eſtate.

* See vol. 2. p. 368. 395. 399. 420.

He was one of the firſt in Scotland who attempted to improve the breed of ſheep by a mixture with Bakewell's kind, which he procured at a very great expence. Many capital rams produced from that mixture were diſtributed by him among his ſtore farmers; and, in a former report, I have expreſſed ſome doubt of the ſucceſs in the high expoſed farms *. But there is not the leaſt doubt of the ſucceſs in the rich fields about Dalkeith, or in any of the low fields in the Lothians. The offspring of that mixture, at two years and a half old, weigh when fat from 24 to 26 pounds *per* quarter, and carry about 12 pounds tallow. The butcher's price is from 36 s. to 40 s.; and two fleeces of wool got before the ſheep is ſold, valued at 10 s. Hence the value of the whole, at a medium, may be reckoned 48 s. *per* head. This is a great improvement upon the ſingle article of ſheep, which every gentleman in the low parts of the Lothians may command, by having good paſture in well incloſed fields.

Great attention is beſtowed on theſe ſheep at all times to procure them plenty of food, and to ſave them from accidental diſtreſſes.

* See vol. 2. p. 361. 460. 463. 465. 467. 488.

diſtreſſes. The lambs only are ſalved the firſt winter; a Scotch pint of tar and ſeven Scotch pounds of rich butter ſerve 26 lambs. Salving is accounted ſalutary, even here, where every comfortable circumſtance abounds *. The wool, being long, and of the true combing kind, is a beneficial article for ſeveral branches of the woollen manufacture †. The firſt and ſecond fleeces weigh from ſeven to eight pounds each. The third is deficient about a pound, and the fourth another pound. The ſecond year's fleece is finer than that of the firſt. It decreaſes yearly in length, and alſo in fineneſs, which I ſuſpect to be occaſioned by the not ſalving regularly every year ‡. The wool ſells to a wholeſale dealer at 16 s. *per* ſtone, with a pound to each ſtone, and a fleece to a pack of 12 ſtone.

His Grace, not reſting on this improvement, though great, procured a ram from Mr Chaplain of Lincolnſhire ‖, in order to procure a croſs breed with the Bakewell ewes. The ſheep of this croſs breed are well ſhaped, active, and better fitted for toil and travel in

* See vol. 2. p. 485. † See vol. 1. p. 407.
‡ See vol. 2. p. 329. 485. ‖ Ibid. p. 484. 488.

in a high country, than any of Bakewell's kind. What remains for ſatisfaction is to compare them with reſpect to fattening; and this trial is making at preſent.

His Grace has been attentive to improve the breed of horned cattle. He procured from Mr Bakewell a bull and young cows at a great expence; but their progeny have not proved what he was made to expect. They are not ſuperior to many of our own breed. The cows, in particular, give ſcarcely ſo much milk as to ſuckle their own calves, and therefore are totally unfit for the dairy. Neither did the calves take on fat ſo well as our natives, or as thoſe of the half blood. This breed, therefore, is totally given up; and experiments have been made with cattle of different kinds; and the beſt that have been produced are from the natives of Eaſt and Mid Lothian, that have a mixture in them of the Holderneſs kind.

The method here of feeding fat in winter, and raiſing young ſtock, is worthy of obſervation. The cattle intended for winter feeding are the beſt kind of Highland ſtots, or middle ſized cattle from Galloway. They are purchaſed in September or October,

tober, and put upon freſh foggage, where they continue till taken up for turnip in in November. To tie them to a ſtake, as uſual in feeding cattle on turnip, is held to be improper for cattle unaccuſtomed to confinement. They are therefore left at liberty in a ſtraw yard, with ſheds round the wall for a covering in ſtorm or rain. Under theſe ſheds proper ſtalls are erected for holding the turnip. They get no hay, being an article of high expence here; but good oat ſtraw in plenty is heaped from time to time on the dunghill, upon which the cattle both feed and lie at pleaſure. It is thought that cattle fed in this manner, enjoying liberty, and having exerciſe and freſh air, muſt be more healthy than thoſe that are tied to a ſtake, and conſequently produce better beef. Small oxen, thus fed, improve mightily; but, to carry them on to perfection, they are turned out to graſs the following ſeaſon; and, when ſlaughtered, their tallow vouches for their value, being ſix or ſeven ſtones Amſterdam weight. The turnip are not left in the ground to be taken up gradually, even in froſt or ſnow. They are ſtored

red up in a houſe while the weather is favourable. Before ſtoring up, they are deprived of their tops and tails *, which are given to the young ſtock of cattle in a ſeparate ſtraw-yard. Young ſheep alſo ſhare; but what they get is carried to a dry adjacent graſs field.

This method may do for a man of fortune, who is leſs ambitious of gain than of good beef. Several objections occur to me in point of profit. It is the nature of horned cattle never to reſt peaceably together, till they have tried their ſtrength in battle, and adjuſted the rank that each ſhall have in ſociety. In every herd of oxen, there is always one who is the acknowledged ſuperior, and one who muſt give way to all the reſt. Among cattle ſtrangers to each other, the ſuperiority remains to be adjuſted, which for a long time will prevent feeding; and thoſe who get the upper hand are frequently ſo tyrannical, as to drive others from their food, though they may have plenty of their own. This perhaps may contribute to health, but ſurely not to fattening. In the next place, much of the ſtraw is trod-

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* See vol. 2. p. 360.

den under foot, and loſt for food. Nor does it anſwer the purpoſe of the dunghill ſo well as when converted into dung or litter in the houſe, and then ſpread regularly on the dunghill. In the third place, the urine, which is an eſſential part of what drops from cattle, turns to very little account; whereas nothing contributes more to the richneſs of a dunghill than to have the urine gathered and ſcattered upon it daily. But, even with reſpect to health, I am doubtful whether there be much difference. A Highland ſtot, however accuſtomed to liberty, is ſoon reconciled to confinement by plenty of good food*. And if currying daily, and waſhing weekly, be taken into the account, which ought never to be neglected where cattle are tied to a ſtake, I imagine that that practice, by promoting perſpiration, will contribute more to health than the freedom of a ſtraw yard. I would add, were I inclined to refine, that a certain degree of warmth ſuited to their conſtitution, which can be given them in a houſe by artful ventilation, will contribute more to health than the variety of weather which cattle

* See vol. 2. p. 360.

cattle muſt be ſubjected to in the open air. One thing I am certain of, that the moſt ſkilful feeders began with ſheds totally open to the ſouth, the ſmall pillars only excepted that ſupport the roof; but were forced by degrees to ſhut up more and more of the intervals, till ſmall opens only were left for ventilation *.

With reſpect to the feeding ſheep on turnip, I have lately heard a few inſtances of its promoting the ſcab; and I have been informed, that the ſame has been obſerved in England with reſpect to young ſheep. I truſt to my information only, ſo far as to put people on their guard, and to make experiments.

To improve the breed of horſes, his Grace gave the uſe *gratis* of excellent ſtallions to gentlemen and farmers in the neighbourhood. Mr Bakewell's kind were ſome years ago in high reputation; and to encourage that breed in this country, ſeveral of Mr Bakewell's ſtallions were maintained by his Grace in his own ſtables for more than one ſeaſon. I am ſorry to ſay that the ſucceſs has not been anſwerable to the Duke's good intention. One

* See vol. 2. p. 356.

One young ſtallion I ſaw; he was bred by Lord Adam Gordon, who gave him to his Grace. He is of a middle ſize, finely proportioned, ſtrong, active, and fit for travel, and bids fair for raiſing an uſeful breed of draught horſes. He was ſent to Hawick laſt year for the uſe of the Duke's tenants in that country. This horſe would produce an excellent breed with the mares that his Grace got from Oxfordſhire, which are exceeded by none for draught and docility.

The Duke's fields about Dalkeith have of late received a thorough reformation. To prevent a ſtagnation of water, the ridges are directed to the moſt effectual level; and where that is not ſufficient, hollow drains are made with great care and ſkill, which in all appearance will be perpetual, and are a neceſſary preparation for good crops. Where hay is intended, a crop of turnip is taken, the field being firſt dunged and dreſſed in the moſt complete manner. The turnip is followed by barley, with which 18 pounds red clover are ſowed, and one buſhel of ryegraſs; the laſt is intended chiefly to help the drying of the clover. Oats finiſh the rotation. Where a field is intended

for paſture, the graſs-ſeeds are ten pounds red clover, ſix pounds white, and four pounds yellow, four pounds ribwort, and a buſhel of ryegraſs. If any defective ſpots appear the firſt year, the field is ſurrendered to paſture without mowing, and the ſeedſhed by the ryegraſs is preſſed into the ground by ſheep, in the courſe of traverſing the field while paſturing on it.

Here I met with a practice that deſerves well to be imitated in light ſoil fit for rye. Immediately after the oat crop, the laſt of the rotation above mentioned, the field was neatly ploughed and ſowed with one boll of rye *per* acre, which, by the firſt week of April, made excellent green food. On one field of eight acres 60 fat ſheep were put the 10th of April. On the 22d they were removed, and gave place to 56 ewes with their lambs; and the ground becoming too bare for fattening, they were removed the 29th, and were ſucceeded by 80 lean ſheep, which continued there till the 7th of May, when every green pile was ate up. And then the turnip culture was begun.

As

As agriculture is the capital art, and the foundation of all others, there cannot be a more agreeable ſcene to the human mind than to obſerve a young nobleman of an immenſe fortune, inſtead of imitating men of the ſame rank in luxury and profuſion, applying his happy talents to the improvement of his country, in a manner the moſt ſubſtantial and laſting. Is there another ſuch in Britain? I wiſh from the bottom of my heart there were many ſuch. I fear there is not one. Nothing is below this nobleman's attention that contributes to good huſbandry. I was ſurpriſed to ſee a vaſt heap of aſhes, out of which the cinders were carefully taken, and gathered into a heap, to be reduced to aſhes by a ſecond burning. The aſhes are ſpread on the graſs every winter, which improves the paſture conſiderably. Compoſts of earth, lime, ſcourings of ditches, &c. are carefully prepared every year, and ſpread alſo on graſs. The aſhes make the earlieſt ſhow, but the compoſt is the more ſubſtantial manure, by adding conſiderably to the ſoil.

Great

Great praiſe is due to Mr Armſtrong, who overſees the Duke's improvements, for his ſkill and attention in conducting the operations. That he was worthy of the favour the Duke conferred upon him, of bearing the expence of his education while in England, attending the beſt improvers of land and ſtock, appears fully from his conduct now as overſeer, and a moſt faithful ſervant to the Duke; a notable example for all to copy, and particularly for thoſe of his rank.

His Grace has not overlooked the valuable corn farms of his own eſtate in this neighbourhood; excellent farm-houſes are built with commodious offices, and long leaſes given, which procured the beſt tenants at an advanced rent. Nothing gives his Grace more ſatisfaction than the proſperity of his tenants; and it appears to be his reſolution to bind none of them by leaſe, if, upon trial, the farm be found too hard for them. One recent inſtance muſt be mentioned. Finding that one of his tenants, after beſtowing labour and expence upon his farm, was loſing ground, his Grace not only diſcharged the leaſe, but gave

gave him, over and above, a conſiderable ſum, equivalent to all the extraordinary expence he had laid out upon his farm. Nor can the Duke loſe by ſuch generoſity: It will encourage his tenants to proceed boldly in their improvements; and their extraordinary efforts will put them in ſo proſperous a way, as to make them profiters, and not loſers, by their management.

At the entry of the preſent tenants, the ground was in a wretched condition, run out with injudicious cropping, and overrun with couch-graſs and other noxious weeds. Their firſt crops were not encouraging; but they did not loſe heart. They applied the plough, the brake, and the roller with ſpirit; procured dung; brought the land into excellent order; and their expectations have been gratified by ſuitable returns.

In former reports I have had occaſion to mention more than one miniſter of the goſpel who were able to inſtruct their pariſhioners in their temporal concerns, as well as ſpiritual. And here it gives me ſatisfaction

tion to mention *Dr Carlyle* and *Dr Grieve*, who have leaſes from the Duke, and who manage their farms to ſuch perfection as to give a good example to the moſt ſkilful tenants in the neighbourhood. Turnip, cabbage, clover, and hay, abound with them. Doctor Grieve has led the way in working with oxen, two only in the plough. I was delighted to ſee them ſo docile and obedient. They moved abundantly quick; and the ploughman averred, that he could do as much work with them as with horſes.

Hearing that the farm of *Sheriffhall-mains*, belonging to the Duke, was greatly improved by *Robert Heriot*, the preſent poſſeſſor, I was fond to ſurvey his operations. The farm conſiſts of 200 acres or thereby, rented at no leſs than L. 300 Sterling. The ſoil is variable, a clay upon a till bottom, a rich loam alſo upon a till bottom, a light kindly ſoil, through which water paſſes freely, and, laſtly, a muiriſh ſoil, covered with whins and ſhort heath. The ſoil was in a wretched condition at his entry, as, in the laſt three years

years of the preceding tenant's leaſe, there had not been a particle of dung laid on the land. Mr Heriot finding the neceſſity of extraordinary exertion, begun with a ſummer fallow of no fewer than 80 acres, to which he gave all the dung he could purchaſe from Edinburgh and Dalkeith, adding to it the dung his predeceſſor had ſtored up during the three laſt years of his poſſeſſion, for which he paid no leſs than L. 100 pounds Sterling. Mr Heriot continues to allot 40 or 50 acres yearly, the ſtrong part for ſummer fallow, and the light part for potatoes in drills. What part of the clay ground was in long ridges, which are very hurtful in rainy weather by carrying off the pulveriſed ſoil, he has judiciouſly divided into two, by a middle ridge directed to the ſlope. And, as to his mode of cropping, the field being completely fallowed, 30 cart loads of dung, which is in a proper degree of fermentation, is laid on about the end of July, and one or two ploughings given as the ſeaſon will permit; three firlots of wheat are ſowed on an acre the firſt or ſecond week of October. The product is from eight to ten bolls *per* acre, and, in a favourable

rable ſeaſon, twelve bolls. Immediately after the wheat is removed, the field is croſs ploughed with a deep furrow; and, after water furrowing, it lies in that ſtate till the ground be dry in ſpring. The harrows are ſet to perform the ſecond operation, and the field is prepared by another ploughing for beans in drills, ſix firlots *per* acre. In a tolerable ſeaſon, each acre produces 12 bolls. Ten bolls are accounted an indifferent crop; ſometimes 16 have been got. To prepare for barley and graſs-ſeeds, two ploughings are always given, frequently three. Three firlots to an acre produce eight or ten bolls. Sixteen pounds red clover, with a buſhel of rye-graſs ſowed with barley, yield in hay about 250 ſtone *per* acre. After two years in hay, the field is broken up and ſowed with oats. This finiſhes the rotation, and fallow ſucceeds as before. The rotation on the light ſoil follows: The firſt crop is potatoes after careful dreſſing. Wheat is the next crop, the ſeed one boll *per* acre, which produces as good a crop as that on the ſtrong ſoil. His reaſon for giving more ſeed here is, that it is late in the ſea-

ſon

ſon before the field can be prepared for wheat, and conſequently a greater riſk of ſome ſeed periſhing, beſides that it does not tiller ſo much as wheat ſown more early. Oats or barley is the following crop, with graſs-ſeeds, as in the other rotation. His method on the muir ground is a thorough fallow with plenty of dung, and wheat ſowed under furrow to prevent its being thrown out by the effects of froſt upon the ſoil. The ſecond crop is oats with graſs-ſeeds, two years hay; and then fallow begins again. Mr Heriot is ſenſible that this rotation would be too ſevere on land ſo weak, were it not ſupported by plenty of dung. But, by intermixing ſo frequently graſs crops, the ſoil will become ſo firm as to be in no danger of falling back to heath, when it ſhall be thought proper to leave it out for paſture.

In ſurveying this farm, I ſaw with pleaſure every ridge in excellent order; ſpots formerly covered with briers and brambles where coal-pits had been put down, all levelled and ſmoothed with ſpade, mattock, and carting. Whether ſuch expenſive works will be properly rewarded in the

courſe of a 19 or 21 years leaſe, I am doubtful. But this liberal improver places unbounded confidence in his patriotic landlord. I ſhall only make this ſingle obſervation, that a man of leſs induſtry and ſtock would have been ill qualified for ſuch a farm. His landlord muſt have ſuffered, and he would have been ruined.

Mr *Pillans*, another of the Duke's tenants, perſevered ſeveral years, with great care and aſſiduity, in drilling of barley in rows of about 15 inches apart. None could be better done, nor hoed to greater perfection; yet he has totally relinquiſhed the drill huſbandry for white crops, not finding it equal to, or ſo much for his intereſt as that of broadcaſt, although there is no better ſoil for anſwering all the operations of the drill huſbandry than that which Mr Pillans tried it upon. As the fact ſtated above is proved alſo by many others I have had occaſion to mention in other reports, I will preſume to caution young practitioners againſt loſing their time and induſtry by dabbling in the drill huſbandry for white corn crops; while I recommend

recommend warmly to their greateſt attention the huſbandry of horſe and hand-hoeing; beans with a few peaſe among them, turnip, potatoes, cabbage and kail, particularly thoſe called Galloway curled kail, and every ſimilar kind of crops; to which add always a portion of dung or other rich manure. And I will alſo recommend to all lovers of good huſbandry, who wiſh to ſee neat and excellent tillage, to take a view of Pillans's farm at Lugton near Dalkeith.

On the farm of *Couden*, his Grace of Buccleugh's alſo, was built, ſome years ago, a very excellent dwelling-houſe, covered with ſlates of the beſt kind, and accommodated with very commodious and ſpacious offices. They are well beſtowed upon the preſent tackſman, Mr *Stair Baillie*, whom I eſteem as among the higheſt characters for knowledge of, and in the ſoundeſt practice of huſbandry. Although all his common and ordinary operations in agriculture be capitally conducted, I will paſs them over by a general recommendation, as being the moſt exemplary and worthy to be imitated, and confine my obſervations

obſervations to a few particulars leſs common, for the ſake of leaving room for others who alſo deſerve a place.

The contents of this farm are about 220 acres; the rent not leſs than 25 s. for each acre, which is reckoned by all that know the farm rather a high rent; but Mr Baillie cannot be in better hands than the Duke of Buccleugh's.

That we may judge rightly of this farm, I will ſtate the nature of its ſoil, which is variable; a deep loam that is rather leaning to clay, ſome lighter, but none of it the gravelly kind; and about one third part of the whole farm is a muiriſh, deaf, inanimate kind of ground, and a thin pooriſh clay. It is unfortunate that all is upon a bottom of hardened till. To balance, in ſome meaſure, theſe diſadvantages, the town of Dalkeith is but one mile diſtant, whence our improving farmer procures dung, of which, at his firſt outſet, the ground being then in a wretched ſtate, he laid upon the farm 1000 draught of two horſe carts, which was continued two years; and ſome years after that, he circumſcribed it to 600 or 700 cart draught yearly;

yearly; but of late years dung is ſcarcer to be got in Dalkeith, on account of the candidates for it increaſing conſiderably; and his quantity has now ſuffered a further diminution.

To ſupply, as much as poſſible, the want of dung from Dalkeith, our attentive improver turned his thoughts to compoſt of earth, ſcourings of ditches, drains, &c. and a conſiderable proportion of lime, mixed intimately, and turned over frequently, which wrought like a charm upon his dreſſed land. From the ſucceſs with the compoſt of lime, Mr Baillie was led to turn his thoughts to lime for a manure to his ground, independent of any mixture, while at the ſame time he carried all the dung he poſſibly could from Dalkeith, and that which the farm, with his ſtock of horſes, cows, and winterings, could produce. From theſe ſources a variety of manures are obtained, and the quantity ſo abundant, that the farm is now in the moſt capital order; to which I muſt admit, the effects of the beſt conducted tillage, and other operations, by break, roller, and harrows.

The

The routine of preparation and crops on the beſt ground is, 1ſt, fallow, 2d, wheat, 3d, beans; but experience made them be left out upon the ſtrong ſoil, as a wet or droughty ſeaſon were equally adverſe to beans, and to the hoeing of them with a plough; peaſe or clover is ſubſtituted in the place of beans. 4th, Barley, with which graſs-ſeeds are ſowed; 16 lib. red clover, and one buſhel ryegraſs ſeed on an acre. 5th and 6th year hay; the beſt land gives 200 ſtone weight from an acre; but the average, taking in the meaner ground, never exceeds 150 ſtone. Breaks up again for oats, which is found to be the only ſure method of obtaining a tolerable crop from this farm of that grain; then fallow takes place as formerly.

To ſhow how diſadvantageous it is to the farmer, who has a large proportion of mean ſoil or bad ground in his farm, I ſtate the following fact, which ariſes from a view of the culture and quantity of manure beſtowed on the meaner kinds of ſoil here, and being equal to that on the better land, while graſs-ſeeds too are ſown with the firſt crop, which is wheat, one hay crop only taken,

taken, and three years paſtured; then opened, and oats ſown. We muſt call this a very favourable rotation; yet the wheat is a very inferior crop; the hay doth not exceed one hundred, or, at beſt, twenty ſtone more from an acre, paſturage but mean, and the oats will not exceed five bolls *per* acre; this is truly diſcouraging.

Fifty bolls of ſhell lime were put upon the fallow *per* acre of the ſtrongeſt clay ground, no dung, and the wheat a very full crop; this encourages to perſevere in the mode of liming. I will venture to ſtrike in now, and give my hint to our intelligent cultivator, which is, to continue the lime only for manure upon the fallow, as he has begun it, and ſucceſsfully too. But next time the ſame field is fallowed in the routine, give dung for the wheat; and ſo forth alternately at every fallowing. Thus, I believe, by change of manure, as well as of crops, conſiderable advantages will ariſe.

I need ſcarcely add, that Mr Baillie's implements of huſbandry are all the beſt kinds, and his horſes capital; they are kept in fine order; but ſtill he is neceſſi-

tated

tated to labour with three in the plough, the ſtrong ſoil, on account of the aſcent on which the ground lies, being too much for two horſes, which may well be accounted equal to the expence of five ſhillings on each acre extraordinary.

Mr *Alexander Carfrae*, at his farm which he holds on a liferent leaſe from the Marquis of Lothian, has been thereby tempted to build a large houſe for himſelf to dwell in only, he being yet a batchelor, and has long poſſeſſed the farm. This houſe he delayed to rear up till within theſe two laſt years, which evidently ſhows how little man thinks of dying, or that a few years more will bring him to the utmoſt period of human life. Thus may landlords ſee their advantage ariſing from ſuch leaſes over their farms, as the tenant never lays it to heart ſeriouſly that this or the other year will be the laſt as to him in this world; he continues to dreſs and manure his farm, and take ſuch crops only as if he never were to die, till at laſt he is whirled off, and leaves the farm to the proprietor in very fine order. Our preſent

preſent poſſeſſor Mr Carfrae, is a ſtrong inſtance of the foregoing obſervation; for we meet with no farm in better order than his is. I muſt notice particularly the water-furrows, they are ſo well drawn, and every obſtruction removed, that no water can poſſibly ſtop, but all goes freely off. He told me this excellent and neceſſary practice was his own contrivance, and it is now adopted by his neighbours *. The ſtate of huſbandry on this farm, although good in general, Mr Carfrae will, I hope, bear with the following obſervation. It is, an obſtinate adherence to the long ago exploded practice of narrow ridges, even where the ground is wet; but his lies on a ſloping bank, moſtly dry, and upon a bottom of rock, which renders his practice of making ridges of nine or ten feet broad very ridiculous. Yet our improving farmer is uſeful among his neighbours; they are not eminent for improvements; but they imitate his examples of practice, both as to tillage, clearing water-furrows, ſowing clover, &c.; and hence

* Mr Carfrae's neighbour farmers muſt indeed have been far behind others in the country, reſpecting this mode of improvement; for it was practiſed in general about 50 years ago.

he has been uſeful to the Marquis's tenants around his farm; and it is believed by many, that the noble Marquis has tendered to Mr Carfrae marks of his good will and eſteem for him on theſe accounts, and others reſpecting his improvement on the farm, which he crowned with the houſe, as mentioned above.

The eſtate of *Preſtonhall* is the property of *Lord Adam Gordon*, a nobleman highly eſteemed by all who know him. But my buſineſs is confined to his Lordſhip's improvements, which I do with the higheſt pleaſure, but with a ſtrict adherence to truth. Every field in the eſtate is completely improved, having been incloſed with ditch and hedge in the moſt perfect manner, and now laid down in graſs, by which the rent of the eſtate is conſiderably raiſed. The fences have been carefully attended to, and at preſent there is not a ſingle gap to be found in the whole. This great work has been executed in leſs than 12 years, while, at the ſame time, his Lordſhip has been not leſs active with reſpect to embelliſhments. The houſe of Preſtonhall, with the elegant policy around it,

fine

fine trees, and beautiful ſheets of water, all in the higheſt taſte, do honour to the proprietor, and is one of the greateſt ornaments of our country.

For the improvement of his land, his Lordſhip adopted the moſt approved method, and has perſevered in it with unremitting attention; frequent changes from corn to graſs; from drilled crops to what is not drilled; from white corn crops to thoſe of a broad leaf, or ſmothering crops, and much fallow and dung. It would tire the reader to be particular; becauſe, in my former reports, I have carefully noted every variety in the new mode of agriculture. I ſhall confine my obſervations to the following particular, that his Lordſhip has been no leſs ſucceſsful in improving the breed of his horned cattle and ſheep, than in improving the ſtaple of his land. His horned cattle are a product of Holderneſs bulls with our own country cows, which I hold to be the beſt mixture hitherto produced in Scotland. They are large, finely ſhaped, feed well, and the cows give much milk. His three year old queys and ſteers give from

from L. 8 to L. 10 Sterling. One fed till four years old was ſold at L. 25 Sterling.

Many in the Lothians have attempted to procure a flock of high bred ſheep, and not unſucceſsfully. But few have adopted a plan for managing ſuch flocks equal to Lord Adam Gordon, which I ſhall ſtate in a few words, and warmly recommend for imitation. The ewes with lamb are not permitted a wide range of land in ſearch of a ſcanty morſel, but confined within an incloſure of good graſs, large enough, however, to make them inſenſible of confinement. When the ſeverity of winter approaches, eſpecially during froſt and ſnow, they get plenty of turnip and cabbage. In this manner they are brought on till the firſt or ſecond week of March, when a freſh field is opened to them, being the foggage after hay of the preceding year, which to them, now heavy with lamb, is a great comfort. To this field alſo the young ſheep are admitted. This freſh ſupply of tender graſs affords plenty of milk for the lambs. When this field begins to turn bare, the flock is put into a ſecond of the ſame kind, kept in reſerve for them; which carries them forward in great order to the earlieſt ſpring graſs; and

ſo

ſo on round the year. As a proof of the excellency of this mode of managing ſheep, I ſtate the following facts. In June 1776, Lord Adam diſpoſed of his ſtock of ſheep by public ſale. Ewes of the Leiceſter kind croſſed with a Bakewell ram ſold, with their lambs, for L. 67 : 15 : 0 *per* ſcore. The Tweeddale ewes croſſed with a Bakewell ram, with their lambs, ſold for L. 53 : 5 : 0. The ewes and lambs of the Nottinghamſhire kind, croſſed alſo as above, ſold for L. 50 : 7 : 0. Rams two years old, half bred, brought L. 5 Sterling each, dinmonts 48 s. wedder hogs 38 s. and ewe hogs 45 s. 6 d. Few, if any in Scotland, can, I believe, compare with theſe prices for a whole ſtock of ſheep. Reader, ſtop but for a moment, and admire the very conſiderable profits got by the ſale of this ſtock. Yet the greatneſs of the gain did not tempt our generous improver to think of monopolizing, as ſome have done, who would not ſell a ram, unleſs he was ſlaughtered in the park, imitating the eminent breeders of ſheep in England, whoſe chief view was private gain. Therefore they permitted none of their fine rams to go from them alive, unleſs it was at a great

great hire for the ſeaſon, and to be returned to the owner. Far otherwiſe was Lord Adam Gordon's method; he freely communicated the kind to all; and his patriotiſm led him frequently to make preſents of ſome of his beſt rams and ewes to ſuch neighbours as he knew would turn them to account.

Every one is ſenſible of the hurt that is done to young graſs, eſpecially in a clay ſoil, when it is poached in winter; but few equal Lord Adam Gordon in preventing that evil. In graſs not above three years old, no animals but ſheep are ſuffered to paſture in winter. His other cattle and horſes are regularly houſed in the beginning of November, or confined within incloſures of old graſs.

As I have the happineſs to live in Lord Adam Gordon's neighbourhood, I have all along obſerved his improvements with peculiar pleaſure. All his eſtate is now laid down in complete incloſures, let for grazing and hay, 70 or 80 acres excepted, which are let for corn to reſponſible tenants. His land-rent, in the courſe of ten years, is more than doubled. And, as every field is laid down in the higheſt order,

der, and full of manure, great muſt the the profit be when permitted to be opened again for corn crops. We are at preſent deprived of his comfortable neighbourhood by his ſerving in parliament. But it is the ardent wiſh of all around, that, after his duty to the public, he may return again to private life, and ſettle at Preſtonhall, the workmanſhip, in a meaſure, of his own hands, to extend his benevolence to all within his reach, and to make every one happy, which appears to be his chief delight.

If the abſence of Lord Adam Gordon can be made up in the country, it will be done by *Lord Hope*, apparent heir of the Earl of Hopeton, who is now reſiding at Preſtonhall. His Lordſhip, abundantly zealous for promoting the intereſt of his country, has attempted, ſo far as his preſent poſſeſſion of a few incloſures of land in graſs will admit of, to make improvements on, and propagate the growth of clothing wool, which the manufacture in this country ſtands greatly in need of; and yet it is ſo little underſtood in Scotland, that few or none have a flock of ſheep that bears real

real clothing wool. His Lordſhip has alſo made conſiderable improvement in the breed of horned cattle. I begin with the ſheep and wool. A real Spaniſh ram and a few ewes are got, which coſt a very high price. Theſe, with ſome of the ſame kind which were bred in the country, made up a little flock of ſheep, carrying the beſt kind of ſhort wool for making into broad or narrow fine cloths. But his Lordſhip did not ſtop here. The plan was enlarged by ſome choſen ones of the fineſt ſhort wooled ſheep in Scotland, which, by croſſing and re-croſſing the breed with the Spaniſh, made an excellent improvement, and increaſed the number of ſheep and the quantity of ſhort wool.

From this experiment, the public may be taught how to rear fine clothing wool, which may always find a ready market, and brings a high price; and his Lordſhip intends to make his plan as diffuſive as poſſible, by giving preſents of his beſt kind of rams and ewes to ſtore-farmers that are in proper parts of the country for rearing fine ſhort wool. I compared the wool of the various kinds which his Lordſhip has with ſamples which I procured from England,

land, and of the beſt in Scotland. It is not inferior to the very beſt of them, and ſuperior to many. I go a ſtep higher; for I compared it with Spaniſh wool, which coſt 3 s. 7 d. the pound Engliſh; and as to fineneſs, it is ſomewhat inferior to the Spaniſh wool; but, reſpecting the length of ſtaple, it is equal. Herein is a very conſiderable improvement made on clothing wool, which is a very comfortable idea to all thoſe who are intereſted in the manufacture of broad or narrow fine cloths, as, by the trial which his Lordſhip has made with preciſion, the way is pointed out for increaſing the quantity and quality of real clothing wool in the country, on which the manufacture ſo much depends.

His Lordſhip intereſts himſelf very much to make a conſiderable improvement on his horned cattle; and that it may tend to general utility in the country, no expence is with-held for accompliſhing it, by purchaſing the beſt kinds that can be got of the breed in Scotland; as they are not only fine ſhaped, but hardy, and thrive well, and are always bought by the drovers of greateſt ſkill, who come from England

for making purchaſes of cattle in Scotland. A fine bull is accordingly got, though not very large, from Captain Campbell, a very noted breeder of black cattle at Callender in Menteith. This bull is of excellent ſhape; he was bred from a fine cow of the Iſle of Sky *, and the fineſt ſhaped bull in the low country of Menteith. A pair of fine cows were got at the ſame time from Mr Campbell, which, with others choſen in the Lothians that were deemed remarkable for fine ſhape and beautiful colour, a notable foundation was laid for raiſing an excellent improved breed of horned cattle; in which his Lordſhip ſucceeded to his higheſt wiſh; and I will venture to pronounce the young ſtock of queys and ſteers are ſuperior, in all reſpects, to the cows and queys that were got from Mr Bakewell, the very noted breeder in England, whoſe great fame for breeding the fineſt horned cattle †, horſes, and ſheep, was ſpread far and wide. I make one exception only, as to the ſize and weight; but theſe are not qualities that we would recom-

* See vol. 2. p. 19. † See vol. 2. p. 2.

recommend, in general, for cattle on the paſtures of Scotland.

This amiable young nobleman, fired with a true ſpirit of patriotiſm, makes it his greateſt pleaſure to lead examples of improvement, in which he combines the manufacture and agriculture of his country for promoting general utility in it.

The particulars we have mentioned are ſpecimens only of what his Lordſhip would do on a larger ſcale. They afford the higheſt expectations from this patriotic improver, when, in ſome future period, he may be called to move in a more exalted ſphere, which will alſo enlarge the circle for exemplary improvement, and doing good to thouſands, by encouragements of various kinds, wiſely ſuited to promote the general good over all, and worthy of the noble family of Hopeton.

Sir *John Dalrymple* of *Couſland*, in the neighbourhood of Preſtonhall, grandfather to the preſent Sir John, Baron of exchequer, was among the firſt in Scotland who thought of improvements; and his memory ought to be highly regarded for the example

example he gave to his neighbours by his improvements of every ſort, not only of land, but of horſes, horned cattle, and ſheep. His horſes and horned cattle were in great eſteem, and to this day are accounted by good judges equal in value to any of a later breed. The preſent Sir John inherits from his grandfather a great zeal for improvements. Sheep are his favourites, and he ſpares no pains to mend the breed. Of all his attempts that way, the ſheep of Chaplain's breed have ſucceeded the beſt. He prevailed upon that gentleman to ſend half a dozen of his beſt rams to this country for raiſing a croſs breed; and from theſe have ſprung a valuable kind of ſheep, which are in requeſt both for carcaſe and fleece. They require, indeed, a rich paſture; but Sir John is lucky in having incloſures perfectly well adapted to them; rich old ſwarded graſs, fenced with ſtone walls, or old ſtrong hedges, which cannot be more profitably employed than by feeding ſuch ſheep.

Sir John ſhowed a parcel of young ewes and tups of half blood, and of the ſecond degree, that deſerved well to be admired.

A few of them might well be reckoned complete in ſhape and figure, abundantly full of wool, of the combing kind, improved in quality by the native fineneſs of the wool from the mothers, which were ſelected out of a flock in Herriot muir. I have not ſeen a better kind of young rams for improving the breed of ſheep in a country of muir and heath, but not mountainous; and our improver is aſſiduous to promote improvements by his rams on the flocks of every muir farm in the neighbourhood, and he is made happy by the ſucceſs in general. Sir John confines not his plan to the muirlands of his own property, but wiſhes to extend it over all the country.

George Anderſon, tenant at *Turniedikes*, may well be recommended as exemplary for good huſbandry; his ſoil is excellent for turnip, barley, and clover, and his attention is great; hence the ſtate of cultivation on the farm for theſe crops is excellent; and his inſtruments of huſbandry, which are various, are well adapted to the purpoſes he intends them for. I avoid entering into particulars, as in general his modes of improvement differ little or none from

from ſyſtems we have already explained at large and recommended *. But I muſt not omit to recommend Mr Anderſon's method of feeding calves for veal, as the veals of his feeding are highly eſteemed by all who love to eat the fineſt veal; nor is he outdone by any in England I ever had an opportunity of ſeeing. The calves are confined to a ſtake in a houſe, which admits of a free ventilation of air for coolneſs in ſummer, but not too much in winter, which would be too ſevere and cold upon the calves; they lie upon a thick bed of ſtraw, which is cleaned, and freſh ſtraw ſpread under them every day, until the bed riſes to a conſiderable depth of ſtraw, which is ſoft and warm for the calves; but it is never permitted to be more than a proper thickneſs, which may be about one foot depth. The calves are conducted to the cows thrice every day; they are at ſtake juſt at hand; and when the calves have ſuckled till fully ſatisfied, they are remanded back to their place. Bleeding frequently makes them fatten, and the veal white. A lump of chalk is

* See vol. 1. p. 206. and vol. 2. the huſbandry in Eaſt Lothian and Berwickſhire.

is hung up within their reach, to lick at, which dries their mouth, and is an amuſement that diverts them from ſucking at any thing they poſſibly can lay hold of, which calves always do when brought from ſucking the cows, and it is prejudicial to them. The chalk is further neceſſary, for it prevents crudities in the ſtomach, to which milk is apt to turn, and an acrid ſourneſs which frequently happens, and is prejudicial to the thriving of the animal. Chalk is not a preventative only of that which is hurtful, but it promotes digeſtion, and quickens the appetite for more milk, by which the veal is ſpeedily and fully fattened, but has no influence on the fine colour of good veal, as ſome fooliſhly think. The quantity of chalk a calf takes, while feeding ſix weeks, is ſo little, that it is impoſſible it can have any effect on making veal white; but the mode of feeding and keeping the calves has every proper effect. Accordingly, the price Mr Anderſon gets is the higheſt, which is not leſs than 4 s. 6 d. the ſtone weight, the calf being weighed alive when full of milk. Indeed, great attention is given to furniſh the cows abundantly with

food

food ſummer and winter, particularly in winter, as, without having plenty of milk, the veal could not be good. Turnip, cabbage, kail, potatoes boiled, and the chaff of corn, all are collected to furniſh out abundance of proper food for the cows.

Mr *Dalrymple* of *Fordel* derives from his father, Sir John Dalrymple of Couſland *, a great affection to agriculture, and he has been ſingularly induſtrious in ſubduing the moſt ungracious of all ſoils, indicated not improperly by the name of *Heathery-rig*, which it formerly bore; a high ſituation, a cold clay, without the leaſt ſhelter even of a ſingle tree. It was a bold attempt to improve this land; but it was his own property. The diſcouragements he met with at firſt were diſtreſſing, not only by poverty of ſoil, but by water. He corrected the firſt by lime and good culture; the laſt by hollow drains, conducted with uncommon ſkill: And he procured ſhelter by ſtrips of trees, firs eſpecially, which have grown wonderfully. It is needleſs to be particular upon his rotation of crops, it being ſufficient to ſay, that it

* See above, p. 395.

it is according to the moſt approved method. In ſhort, a ſtranger taking a minute view of this now gentleman-like place, the paſture, corn crops, turnip, and cabbage, would not believe that it was formerly a muir, and the greateſt part of it covered with heath.

For want of room, and on account of brevity, I paſs over many particulars here; and confine myſelf to ſtate only the few following, for a leſſon to all improvers, and particularly to gentlemen who have to manage land ſuch as that of Mr Dalrymple's.

Every method for draining and holding the ground dry is uſed, as an eſſential preparation for improvement of this cold thin clay ground, by the ſubſequent operations of cultivation, which are a thorough fallow, on the ſtrongeſt ſoil, and dung given. Turnip, cabbage, kail on the lighter land; and every one of theſe branches are managed to perfection. Yet I cannot agree with this very eminent improver, that theſe green crops are proper on a ſoil which naturally retains too much water, and holds it very long. It is true, indeed, every precaution is taken to prevent poaching,

when the turnip, &c. are taken off. The crops of every kind are extraordinary, although the ſoil is bad, owing entirely to Mr Dalrymple's ſuperior ſkill and attention; and the ſtraw and turnip are a great fund for manure. Black cattle and ſheep being fed therewith, raiſes an excellent dunghill.

When an old graſs field is to be opened by the plough, 100 bolls of ſhell-lime is uſed on the acre of the ſtrongeſt clay-ſoil, and 75 bolls to that which is lighter, or more muiriſh. Lime-ſtone is at hand on the eſtate, and coal not two miles diſtant, a great encouragement for giving abundance of lime to this clay and muiriſh ſoil. One or two white crops are taken; then a complete dreſſing by plough, brake, and harrow, is given, by way of preparation for turnip, cabbage, and kail, to which dung is abundantly given. Surely no preparation can exceed this; and the after-crops ſhow it; they being always luxuriant, which alſo paves the way for graſs-ſeeds, the ultimatum of Mr Dalrymple's wiſhes, being a fine cloſs ſward of graſs, and he has now almoſt procured it.

Many

Many irregular banks and heights, to which the plough cannot have acceſs, are dreſſed by labourers with ſpade and mattock, and as ſoon as poſſible put under graſs, which make a fine addition and variety to the ſheep-walk, and furniſh out to them ſhelter, as well as different kinds of paſture, which is beneficial for a flock of ſheep. The flock conſiſt chiefly of a breed from Mr Chapline's ewes and rams. The fine order they are in ſurpaſs any of that kind I have ſeen in the neighbourhood. Their wool is 9 inches in length, and I meaſured the wool on one fleece 12 inches, which was ſhorn from a half-breed ewe. The mother came from Tweeddale, and the wool is finer too than that from the full blood. It weighed 8 lib. or half a ſtone.

I conclude this account of Mr Dalrymple's improvements, with a plaudit due to him, as one of the very beſt gentlemen-farmers I ever ſaw, and the moſt maſterly improver of barren ground I ever met with. Fordel bears witneſs; but, go half a mile farther, to Blackdub, and ſee a range of incloſures on the ſide of the public road leading from Ford to Dalkeith,

obſerve

obſerve the cultivation and fences thereon, compare with that on the other ſide, and all around, which is evidence irreſiſtible. That none I ever met with, Mr Dalrymple excepted, would have been hardy enough to have ventured upon ſo arduous an improvement as that of Blackdub; and yet the ſucceſs of it makes all who paſs that way ſtop to conſider and admire the wonderful improvement made upon that beggarly piece of land.

Mr *Pringle* at *Fordel*, a tenant of Mr Dalrymple's, is an apt ſcholar; he takes many leſſons from his landlord, and finds his account in doing ſo, as the ſoil of Mr Pringle's farm is a wettiſh clay; he cannot imitate a better example for improving ſuch land than Mr Dalrymple's; yet, in all things relative to the culture of clay ground, Mr Pringle is not a ſervile follower, for he diſclaims the practice of raiſing turnips upon clay, for which I commend him. A clean fallow, with dung, he moſt prudently prefers to every other mode of cultivation for wheat. His ridges, too, are not ſo broad as his landlord's; they are fifteen feet

feet only, which he thinks more proper for preſerving the ſoil in a drier ſtate than the other at 18 feet breadth, both being gathered twice only. He perſeveres in ploughing croſs the ridges for holding ſuch ground dry in winter, in which practice he ſtands not ſingle; but I am not clear if it be the beſt method with ſuch a thin clay ſoil as ſome part of his is. Mr Gray, indeed, at Dalhouſie-mains, whoſe obſervation and judgment I reſpect, introduced, I think, the practice, and Mr Pringle, with others, have adopted it; Mr Gray alſo perſeveres, which has almoſt made me a diſciple. But the clay ſoil that Mr Gray has to manage, is a deep ſtaple of clay, and richer too, which admits of that mode of tillage, better than the other; nor am I ſure that moſt farmers would give the ſame minute attention to this mode of culture which he does. Mr Pringle is, indeed, an attentive improver, and the general ſtate of his ſtubborn land verifies it. The mode of building and covering his ſtacks of corn, I preſume, is taken from that which is recommended in the Gentle-

man

man farmer, as being a near reſemblance of it *, although not altogether the ſame; but the corn is thereby ſo well preſerved, that every farmer around ſhould go and take a leſſon from Mr Pringle.

Mr *Cockburn*, the ſheriff, well known and greatly reſpected for his conduct, not only as a judge but as a magiſtrate, deſerves little leſs reſpect for his farming operations, though not ſo publicly known. He ſtudies rather to conduct his operations as an improving farmer than as a gentleman improver, and wiſhes his practice to be conſidered in that point of view only. The land of Cockpen, his property, is a clay, not of the richeſt kind. When he began his operations, Tull's mode of huſbandry was in great reputation. It is of itſelf enticing, and carries a great air of truth; and what made him cling to it the more was, that he had little acceſs to manure, except the ſmall pittance that could be raiſed on his farm, which was too mean an object for a young man of enterpriſe. He, therefore, commenced farming upon Tull's plan, and proſecuted

* Gentleman Farmer, p. 150. 151.

proſecuted it with ardour and accuracy. But it was not long before the conviction was forced upon him, that it was not a plan at all fitted for a coarſe clay ſoil like his. What, then, was to be done? Lime appeared his only reſource, which commonly does well on clay. To liming, then, he applied himſelf; but, to his great diſcouragement, he found, after repeated trials, that it had very little effect. His land is moſtly upon lime-ſtone, and he could find no reaſon but what is commonly believed, that lime does not anſwer upon ſuch land*. He was now at a ſtand, loath to give up huſbandry, and yet foreſeeing no benefit in going on. At laſt the thought luckily occurred that he could procure dung from Edinburgh, eight miles diſtant, and from Dalkeith four miles, at a moderate expence, by ſending coal there, and bringing back dung. This practice he has followed ſeveral years with ſuch ſucceſs as gives him abſolute content; wheat, peaſe, and beans, broad-caſt, barley, oats, graſs, all good, clover luxuriant, both firſt and ſecond crop. This year eighteen acres of wheat, ſold on the foot, drew nine guineas the acre, peaſe

L. 6,

* See Vol. 2. p. 249.

L. 6, oats L. 5, the firſt cutting of clover for hay L. 3 : 10 : 0, the ſecond little inferior. Yet the market prices of grain were lower than in former years. According to Mr Cockburn's management, there can be no objection againſt his ſelling corn on the foot; the regular ſupply of dung from Edinburgh and Dalkeith makes up that loſs.

Barley makes not an article in the rotation; as it is extremely difficult to raiſe a crop of good barley from ſtubborn clay. To prepare it for a crop of barley, it ought to be, at leaſt, thrice ploughed and well pulveriſed. It ought never to be ploughed or harrowed wet, which would make the parts run together and prevent pulverization. And, to obtain ſo much dry weather before May, as perfectly to correſpond to theſe operations, is ſcarcely to be expected. But, where every article happens to anſwer, no ſoil bears larger crops of barley than clay.

His fences, whether ſtone or hedge and ditch, are all in good order. His plantations, ſpreading a great way along the river Eſk, are in a thriving ſtate, many of his

his trees are large, and the embelliſhments beautiful.

I now come to a product that hitherto I have not had occaſion to mention, and that is ſtrawberries, which cover many fields on the banks of North and South Eſk. Near Edinburgh, it is a very profitable crop, though far from being a nice plant to require much culture. Formerly it was confined to the gardens about Edinburgh; but, as now the demand for it is great, it is produced in ſpots at a conſiderable diſtance. I am tempted to give one inſtance of his ſtrawberry crop, from the ſingularity of its circumſtances. It was raiſed on the North bank of South Eſk, the ſoil a thin clay, covered with whins, which were hoed out by the root. The ſoil was well dreſſed and dunged, and the ſtrawberries planted in rows, the uſual way. The very firſt year of bearing fruit, the money drawn for it was at the rate of L. 40 Ster. *per* acre.

I never had a greater temptation to try my hand in deſcribing the beauties of a place, than to deſcribe *Arniſton*, the magnificent ſeat of the Preſident of the Court of

Seſſion, with the incloſed and poliſhed ground, which, I am told, is twelve miles in circuit. There is a pleaſing variety of ſurface, from perfectly flat to pretty high. The houſe is advantageouſly ſituated upon the plain, near the riſing grounds, and overlooks a noble and extenſive flat, all the way down to Muſſelburgh and the ſea. But the moſt charming of all are various rivulets, running in ſtrait glens, the high banks all covered with wood, and foot-paths in every direction. There are miles of ſuch paths, where one may walk comfortably, ſecure againſt every intemperance of the air.—A happy ſituation, where ſuch variety prevails, eaſily obtained, where nature leads the way, otherwiſe impracticable. But I muſt check myſelf, for I was not employed by the commiſſioners to deſcribe places, nor am I well qualified for ſuch an employment.

Too much moiſture is prevalent here, from the variety of the hills, which is the more felt, becauſe the ſoil is moſtly clay. But a ſtranger will not ſuſpect ſuch a thing, as all the fields are made perfectly dry by proper draining. If bullocks and ſheep,

fully

fully fat on graſs, be a proof of rich paſture, we have it here. For winter feeding, great ſtore of turnip, cabbage, kail, are raiſed yearly; and, by this ſort of huſbandry, the ground under the plough is kept continually in good order. I muſt, for brevity's ſake, avoid particulars; but, in general, I can pronounce, with aſſurance, that I never ſaw better management, nor more plentiful crops. As the green crops are extenſive, they are made to come on in ſucceſſion, by beginning, ſome early, ſome later. His Lordſhip prefers greatly turnip in drills to be horſe and hand hoed. Some years ago, a diſpute aroſe between two noted gentlemen farmers about the heavieſt turnip crop. The one, whoſe eſtate was in the ſhire of Forfar, ſtood for the drilled crop; the other in the ſhire of Kincardine, was for broadcaſt. A wager was laid, judges appointed, and the latter was found the weightieſt crop. This led the Lord Preſident to mark out an equal portion in one of his fields, done in drills, neither the beſt nor the worſt of the field. The weight exceeded the broadcaſt crop in Kincardine-ſhire 800 ſtone.

The

The bull, the cows, and young ſteers, are remarkably well made. They are produced from the ſhort horned Holderneſs kind, mixed with our own breed. The long horned kind I diſlike, as they are neither ſo good for milk nor ſo ſoon ready for draught as the other. Oxen are preferred for draught; and two in a plough, without a driver, do as well as two horſes. I ſaw a mighty load of coals brought up hill by them with eaſe. They are alſo employed in a three wheeled cart, the third wheel before the burden; much preferable to that of Mr Gordon of Premnay, the third wheel of which is placed behind, under the burden. A carriage ſo conſtructed would require very ſmooth ground to go ſteady, without leaning to the one ſide or the other. Turnips are hoed with a ſingle ox in the plough; and the ſervants, having now conquered their prejudices againſt them, told me that they prefer them to horſes. The chain plough is in conſtant uſe here. If one is curious to ſee roads in perfection, let him repair to Arniſton, where both public and private roads are made

made on the beſt plan, and kept in repair in the beſt manner.

The dairy is conducted in great perfection; of which the high flavoured butter and rich cream are full evidence. Yet the cows are fed with cabbages once every day during the winter months; but, to take off the taſte of cabbage from the milk, warm water is poured amongſt it as ſoon as milked from the cow, or the peal, in which the milk is, put into hot water, and the acquired taſte of the cabbage ſoon flies off. I prefer the laſt method.

The attention to accumulate manure is highly commendable, and the reſources are great. His Lordſhip's farm, including pleaſure ground, is no leſs than 800 acres. And a numerous ſtock of horned cattle, kept running on the foggage all winter over, in diviſions, ſorted of the different kinds and ages; and for each diviſion, ſheds are ſet up in a dung yard, at a commodious place, on the different fields allotted for the cattle, to which they are driven in every night, and fothered with coarſe hay or ſtraw. Sheep, too, are managed in the ſame way, altogether, calcu-

lated

lated for accumulating a great dunghill, to which we muſt add a conſiderable addition, ariſing from the annual conſumpt of 12,000 ſtone weight of hay at the ſtables, and by the milk cows in the byre. Nor is lime with-held; it is always put upon the ſward the year before the field is to be opened by tillage for a few crops of corn. Taking along with us the excellent culture by plough, brake, roller, and harrow, applied only when the ground is in perfect condition for theſe operations, no one will doubt of a ſure return of rent and profit annually, ſuitable to the extent of his Lordſhip's farm and improvements made thereon, as, indeed, I am well aſſured the returns are conſiderable, and equal to the rent of the land and expence of improvement.

Houſe lamb and mutton, fed within doors, abound at Arniſton, in greateſt perfection; I preſume hundreds of good judges will vouch this fact.

Mr *George Thomſon* at *Dalhouſie* has made great improvements on his farm there of 1500 acres, the infield part of which did not exceed 50 acres, the reſt being a muiriſh

muiriſh ground on a till bottom, the ſurface rough, covered with bent, heath, and whins. It was, beſides, very wet, and no care taken to drain it. I was led to ſee a ſtratum of moſs, impregnated with a vitriolic acid ſo abundantly, that, out of four pound weight of the moſs, one pound of green vitriol was extracted. In other parts of the farm there were alſo veins of iron ore. And, to ſubdue theſe peſtiferous ſoils would, I believe, require very deep ſkill in chymiſtry, if at all practicable.

Mr Thomſon, above thirty years ago, got a leaſe of this farm from the Earl of Dalhouſie, to endure three nineteen years; ſhort enough to afford any proſpect of improving ſuch a farm. At his entry, the arable part had produced two bolls only *per* acre. Lucky it was for the landlord to get for his tenant ſuch a man as George Thomſon, qualified in every reſpect for ſo bold an enterpriſe. And yet the Earl received ſixty guineas of graſſum, and the old rent was kept up, which, being paid in kind, will advance as the price of grain advances.

After

After providing a good houſe, with proper offices, Mr Thomſon applied himſelf to incloſe with ditch and hedge. To preſerve the young thorns, and to keep in the cattle till the hedge ſhould be fencible, he added a back dyke of feal 4½ feet high, with a little ditch behind, eighteen inches deep. This work coſt ten pence the rood, being thirty-ſix ells, and is well done. I will not retard the reader, by relating his operations on the infield, being pretty much the ſame with what I often mentioned before. I haſten to the muir, which he thought to conquer by lime ſolely; but in vain. He altered his method, and tried part of it with folding ſheep, adding thirty bolls of ſhell lime to the acre, carried four miles. The firſt crop oats, ſecond peaſe, third oats, which were tolerably good. Fallow came next, with forty cart loads of dung to the acre; then barley, then oats and graſs ſeeds, ſix pecks rye-graſs, eight pounds red clover, ſix pounds white, four pounds ribwort. After a ſingle cutting for hay, he paſtured eight years. Opened again, and the ſame rotation renewed. Thus, by a laborious proceſs, and very

very little profit the firſt part of it, the folding plan was completed in twenty years; and we now find wild poor land ſo much fertilized as, by gentle uſage, to yield pretty good crops both of corn and graſs.

I proceed to Mr Thomſon's operations on Skilty muir, diſtinguiſhed for its poverty, even above all the bad land around. It had been flayed to the bone by cutting turf and divot for the houſes, time out of mind. It was, beſides, naturally wet. But a fortunate circumſtance occurred. The coal underneath, begun to be wrought ſeveral years ago, has made it perfectly dry. This led Mr Thomſon to attempt the improvement. The drieſt part was fallowed two years ſucceſſively, a ſingle furrow the firſt year, three furrows the next. Forty bolls ſhell lime were given to the acre. And here another fortunate circumſtance occurred. There were upon the farm many old uſeleſs houſes, built of feal, impregnated with ſoot. Theſe he pulled down, and mixed the rubbiſh with lime and ſtreet dung, to the amount of 2000 cart loads, which being ſpread on this poor ſpot, altered the very nature of it. The firſt crop oats,

yielded from five to ſix bolls *per* acre. Tares, a meliorating crop, came next, and were excellent; then Lincoln barley, on a ſingle furrow, which produced ſix bolls the acre, when common barley, after two furrows, yielded three only. Graſs ſeeds were ſown, and ſheep are now paſturing on it. But, like other muirs in the Lothians, it is ill ſwarded, and turns worſe and worſe by age. Therefore, unleſs he continue to manure at intervals, it is in vain to think of making any profit by it *. Mr Thomſon, however, is indefatigable; for it galls him to ſee any appearance of poverty in his farm. To procure every poſſible advantage to his farm, Mr Thomſon breeds cattle, and purchaſes ſome for his graſs, which he feeds light, and reſerves a rough foggage for winter. The heading of his ſtacks, and other refuſe of his ſtack yard, are carefully collected for a bedding to his cattle on the dunghill. They get plenty of ſtraw, and a fine dunghill riſes by degrees. Hay is not with-held in ſtormy or hard weather.

The

* See Vol. 2. p. 132.

The extenſive farm of *Dalhouſie-mains*, near Newbottle, a part of the Marquis of Lothian's eſtate, is all of it arable, and not leſs than 240 acres; a clay ground, and moſt part of it the ſtrong ſtiff kind, and a good depth of ſoil. To cultivate ſuch with ſucceſs, much art, great attention and ſkill muſt always belong to the cultivator, Mr *Andrew Gray*, the poſſeſſor of this farm, who is in every reſpect equal to it; and the voice of fame from all around confirms my opinion.

This cautious farmer began with levelling and ſtraighting the ridges; but his quick obſervation ſoon perceived the impropriety of that practice on ſtrong clay, and ſtopt when a part of the farm was finiſhed, never to alter more of it from the forms of the old ridges. He tried various methods of cultivation; and the mode he now has adopted from obſervation and long experience, will be an inſtructing leſſon to every improver of clay ground, which I give with pleaſure to thoſe who read with a view of receiving good advice.

He

He begins with a hearty ſummer fallow, but never undertakes more acres at a time than he can afford dung for, at the rate of 34 or 35 cart-loads to an acre; each cart is a full draught for two good horſes; and for increaſing the quantity, all the dung he can procure from the town of Dalkeith, two miles diſtant only, is carried to the farm. Thus a vaſt ſtock of dung is accumulated yearly, the very beſt medicine for clay ſoil that I know.

Thus prepared, let us follow out the practice. He gives the firſt furrow when the ground is dry in the ſpring, which, according to the ploughman's ſtile, is by caſting the ridges out or in, the furrows always made clear for draining off water. The ſecond ploughing is croſs the ridges; when it is finiſhed, harrowing is the next operation; but not again; for the ſurface muſt be held rough, and full of clods. A complete water-furrowing is never omitted after the finiſhing of every operation; for it is of vaſt importance that the ground be kept free of too much water. The third ploughing gathers the ridges up to a proper height; when it is finiſhed, the dung

dung is laid on, and not without a particular addreſs for preventing, if poſſible, the danger that follows after rain falling before the dung is ploughed into the ground. The method is, to lay the dung upon one fourth part of the length of the ridge only, and with great expedition run over the breadth of the field at equal lengths. The moment it is finiſhed, the ploughs are all employed to cover the dung, which is done by croſs ploughing the ridges; and the moment of finiſhing, the water-furrowing plough is run between every ridge to clear the furrows, which alſo is not neglected on a Saturday night, in ſo far as the ploughing has been carried on in a croſs direction of the ridges; that if rain ſhould fall next day, every furrow will carry it off; thus proceeding ſtep by ſtep till the whole is finiſhed, which completes the fourth furrow. I muſt ſtop a moment to admire this exemplary farmer's plan of cultivating clay ground. There are many fields of ſuch ground in Scotland, that have been undone by a ſudden fall of rain upon them, when in high tilth,

tilth, and lying flat, not ridged up properly; or, if ridges are formed, the furrows are not cleared for receiving and draining off the water. This is deplorable; for all the preceding labour goes almoſt for nothing; ſuch incidents frequently happen at an advanced period of the ſeaſon, when it is out of time to reſtore the tilth, and prepare the ground, ſo as wheat may be ſown with any degree of propriety.

The fifth furrow is given in September, which gathers up the ridges to a proper height. Wheat is ſown the firſt or ſecond week of October; he wiſhes never to be later; three firlots on the acre, which frequently produces thirteen bolls; but ten is accounted a good crop. So ſoon as the wheat is removed from the field, the ploughs are put in motion, drawn by two horſes; an ebb narrow furrow is raiſed and ſet on its edge, that the greateſt ſurface may be expoſed, and the ſoil kept in the drieſt ſtate throughout the winter, and to be early dry in the ſpring for peaſe and beans to be ſowed upon it, in the manner fol-

following. Harrowing is the firſt operation, but a few ridges only at a time, ſo as theſe may be got finiſhed within the day; beans and peaſe half and half; ſix firlots on an acre are ſowed before the plough, and are ploughed in by a light plough raiſing an ebb furrow. Thus the field being finiſhed by cautious ſteps, a proper tilth is preſerved, and the ſeed lies in a dry bed. No harrowing now till about three weeks after; then the firſt proper opportunity is embraced, and the ſurface is harrowed completely, which raiſes a new fermentation in the ground, leaves it in fine order, and promotes a vigorous vegetation in the grain, which generally produces from eight to ten bolls *per* acre.

The third crop is barley, to which three furrows are given, and graſs-ſeeds are ſown with the barley; 15 lib. red clover, 2 buſhels ryegraſs, on one acre. Hay is taken for the fourth and fifth crops, which run from 250 to 300 ſtone *per* acre, and the ſecond year of hay is often the greateſt. This obſervation is verified by many facts I have met with, owing, I think, to the

the longer time the top roots of the clover have had to penetrate deeper into the clay, and is thereby enabled to put forth and ſuſtain more ſtems than they do the firſt year. When the after crop of the ſecond year's hay is eat by horned cattle, the ground is opened again for the ſixth crop, which is oats, and they are always excellent, which finiſhes the rotation, to begin again with a fallow. The great ſucceſs of the foregoing plan recommends it for imitation to all farmers or improvers of clay land.

Mr Gray gives two ploughings for oats, and is ſo fully convinced of its utility on clay ground, that he recommends the practice warmly. His mode of conducting this branch of huſbandry will be a good leſſon for others. The firſt furrow is croſs the ridges, and done before the ground be made wet by rain on the approach of winter; the water furrows are cleared, ſo as no water ſhall remain upon the ridges. The ſecond ploughing is at the time for ſowing oats; the ground being dry, it is drawn along the ridges, and croſſing the former, tends to break and divide the clay ſoil, which,

which, by a natural coheſion in clay, is ſometimes difficult to be done without the aid of the roller, which is never omitted by our attentive cultivator when it is neceſſary, and a liberal uſe of the harrow. His oats, from this method of culture, are a much richer crop than thoſe raiſed upon a ſingle furrow given before winter, and the ground is always left in much better order. Whatever degree of merit may be in the foregoing practice, I willingly attribute it to Mr Gray, as, from every information I have yet got, he has the merit of leading the example, and others have followed it. I have long doubted the utility and propriety of ploughing croſs the ridges of clay ſoils; yet the authority of this ſenſible farmer ſtaggers my opinion.

He admires oxen for ploughing and harrowing; keeps them as ſupernumeraries, by way of additional ſtrength, to forward the labour in ſpring and ſeed-time, when the ground is dry; for on wet clay their feet ſink and poatch the ground; their work fully compenſates for maintenance, and they are ſtill growing in va-

lue; hence a ſure profit is always got from oxen.

A good houſe on a farm is cheering and comfortable; abundance of offices make commodious conveniency for every branch relative to a large farm. Theſe we find at Dalhouſie-mains, which were chiefly reared at the tenant's expence, and ever kept in great order. From the foregoing view of the difficulties incident to the management of this farm, the ſuperior ſkill, indefatigable attention and induſtry of this capital farmer appear moſt conſpicuouſly, as he has overcome or parried all of them occaſionally as they occurred, and realized very handſome returns from his crops, as a juſt reward for ſo liberal an outlay of money, and his own pains in conducting the operations on the ſtubborn ſoil of this extenſive farm.

The eſtate of *Melville*, fourteen or fifteen years ago, made no figure as an improved eſtate. The ſoil is variable, having almoſt every kind between the extremes of ſand and clay. Equally ſo is the ſurface, much

much of it flat and dry, ſeveral banks and braes, ſome parts of a moſſy ſubſtance, and ſome ſwampy, for want of a drain for the water. The moſt beautiful part is a narrow, but pleaſant vale, watered by the Northeſk gliding ſweetly along it. In the broadeſt part of the vale, and near the river, ſtands the manſion-houſe, ornamented with three trees of high antiquity, an oak, and two aſhes. Tradition gives the honour of planting theſe trees to David Rizzio, who choſe this beautiful ſpot for his country reſidence.

Lucky it was that this ſpot, capable of high improvements, both for beauty and profit, fell into the hands of Henry Dundas, Eſq; Lord Advocate of Scotland. His firſt object of improvement there was the convenience of hay and paſture; and his firſt operation was the draining the wet ground, which is done ſo effectually as to laſt for ever, and, at the ſame time, ſo artfully as to give no impediment to the plough, which was next applied, with the addition of lime and dung in plenty. His Lordſhip does not, like many pretenders

to

to improvement, meaſure out to his fields a ſcanty meal of either. His crops are judiciouſly accommodated to the nature of the ſoil, and conſequently are very various in their courſe of rotation. What I ſurveyed might compare with any in the kingdom. At preſent there is not a ſtone or weed to be ſeen in any dreſſed field of his; all are poliſhed and cultivated to perfection.

The moſt difficult part to ſubdue was a bog of conſiderable extent. It happens to lie on a declivity, which aided the draining of it. Many drains were opened, at the diſtance of eight or ten feet from one another, filled up with ſtones, and covered with dry ſod. They are all directed to a capital drain, which receives all the water and diſcharges it into the river. It is now effectually dry, ſo as not to ſuffer by too much moiſture; which is evident from this circumſtance, that the beſt ſort of graſſes flouriſh on it, which were ſown in a greater quantity than common, in order to produce, at once, a cloſe ſward. It is intended, as I was informed, to remain in paſture a number

ber of years, in order to acquire ſuch ſolidity as to admit lime without hazard of ſinking. It will then be in the beſt ſtate for graſs-ſeeds, after being opened for a crop or two of corn.

The banks and braes are poliſhed; many ſprings are drawn off by drains upon the ſurface, or under it, and foot paths are carried through the whole, for the convenience of walking. The whole is embelliſhed with clumps of trees, of various kinds and figure, flowering ſhrubs and grottos. The old trees are thinned, and reduced into order.

It would be ſtrange if the planting of trees ſhould be neglected by a gentleman of his taſte. His plantations are chiefly diſpoſed in broad ſtrips round his incloſures, and thrive well, eſpecially the larix. Many of theſe ſtrips, ſeen from the high-road, chear the traveller, and give an agreeable aſpect to the country round.

The incloſures are well fenced by thorn hedges, and by ſtone walls where the ground is leſs proper for thorns *. In ſome incloſures the hedges are protected with a pailing

* See Vol. 1. p. 260.

pailing two feet high, ſloping a little toward the incloſure; an abſolute fence againſt ſheep.

His Lordſhip has reſerved the worſt of his land for his own management. What his tenants poſſeſs is conſiderably better, and they do it juſtice. Mr Tait excells in the drill huſbandry, and Mr Murray in ſummer fallow. The farm houſes and offices are neat and commodious. I have frequent occaſion to travel that road, and never can paſs without reflecting upon the amazing change on the face of this eſtate, campared with its appearance fifteen years ago.

General report holds it forth, that Mr William Hunter at Gilmerton built a houſe on his farm, finiſhed and fitted it up within ſo well, that it excelled any farm houſe in the Lothians. My curioſity being thus raiſed, I could not be ſatisfied without ſeeing it, and then take a view, and obſerve if his huſbandry correſponded with the excellency of the houſe. I ſurveyed both with great pleaſure, becauſe my expectations,

tions, although raiſed high, were not diſappointed. If we hold a weighty crop on every field a true mark of the farmer's ſkill in huſbandry, we muſt decide in favour of this improver in agriculture. His mode of improvement is not new; but the neat manner of conducting all the operations upon this farm, particularly the tillage, is exceeded by none; and few equal it. This is the place for young improvers to viſit, and receive inſtruction in huſbandry. His modeſt deportment ſets off all he does with a good grace; for none ever hears of his boaſting, as many do, which raiſes in the hearer diſguſt, even at their very beſt performances.

N. B. I occaſionally paſſed through Mr Hunter's farm, July 20th 1782, and could not refrain from giving him joy on account of a rich appearance of all kinds of grain, wheat, peaſe, and beans in particular. None I have ſeen this year (which has been very adverſe) equals his.

Edmonſton, Mr *Wauchop's* eſtate, is ſituated moſt advantageouſly, nearly at equal diſtances from Edinburgh and Dalkeith, and not more

more than three miles from either, which are the great marts for every production of land, and furniſh a mighty ſupply of manure for enriching the ſoil, which is alſo naturally good; hence the rents that Mr Wauchop's tenants can afford to pay are abundantly ſatisfying to a gentleman of his kindly diſpoſitions, without troubling himſelf with the toil of great improvement, or the diſagreeable practice of ſqueezing up the rent to a higher pitch than the ground can properly afford. His huſbandry on the lands in his natural poſſeſſion is not inferior to any; but he glories chiefly in the rich paſture for the cows and horſes that are kept for family conveniency, and the quality of the cows, which is indeed extraordinary, as appears from the following fact: A cow bred at Edmonſton gives twenty pints of milk in the day, which being creamed about thirty-ſix hours after milking, and then churned, it produced $57\frac{1}{2}$ ounces Engliſh of fine rich butter. This is the higheſt inſtance of many I have given of the extraordinary qualities of Scottiſh cows for yielding * milk and butter,

* See Vol. 2. p. 217. 260. 295. 370. and 437.

ter, ſuperior to any I ever heard of in England, or any other country.

Mrs Wauchop authorized me to relate the above fact for the honour of our country, in reſpect of the rich paſture it affords, and the valuable breed of cows in Scotland.

This very amiable lady, whoſe perſonal accompliſhments and mental endowments yield to none, is well known by all ranks and degrees of perſonages in the country for a laudable attention and accuracy in domeſtic affairs, which ſtamps undubitable authority on the fact, as the trial was made by her orders, and under her own inſpection.

The ſeat of Mr *Tytler* of *Woodhouſelie* is romantic, ſituated in a glack of Pentland-hills, with a ſouth expoſure, and finely ſheltered from the north by the hill at the back of it. A ſtream of fine water iſſuing from the hill affords plenty to the fields below. The ſituation of Mr Tytler's eſtate ſubjected it naturally to inundations, from rain falling upon the hill, and ruſhing down upon the plain. This in-

convenience is now totally prevented by ſmall ditches that lead off the water, and prevent harm. But more was neceſſary to purge the ground of water. The many ſprings that iſſued about the bottom of the hill, which formerly ſtagnated in low places, are carried off by upper and under drains, and theſe moiſt ſpots made abſolutely dry. The fields being now prepared for cultivation, which has been ſucceſsfully carried on by good ploughing, lime, and dung from the ſtable-yard. His fields, at preſent, look more like a garden than like ground lately redeemed from a very bad ſtate. On a field that had frequently been cut for hay, and ſo wet, that the mowers walked barefoot, which is now drained, there was ſpread about 100 bolls of lime *per* acre, which has made a powerful change, by deſtroying the watery plants, and introducing the finer kinds that ſpring naturally on dry ground, ſuch as the purple feſcue, plantain, fox-tail, feathergraſs, almond or vernal graſs, white clover, and ſome of the fitch kind. Mr Tytler encourages his tenants by leaſes, on moderate conditions, for

nineteen

nineteen years. He gives them neat dwelling houſes, with commodious offices; and he extends that benefit even to his cottars. I ſurveyed the farms of two of his tenants, John and Thomas Stevenſons. Their hedges are well trained, and will ſoon be fencible. They fallow and raiſe clover, and, of late, they have begun to the colture of turnips; and, no doubt, but the ſpirit of theſe men will carry them on to further and further improvements; and they will prove an example to their neighbours in a country where ſkilful huſbandry is very little known. Such ſpots as could not be reached by the plough are carefully filled up with trees of different kinds. Mr Tytler has incloſed and planted a great deal, and has the pleaſure to ſee his trees of oak, elm, aſh, and fir, now thirty years old, in a thriving condition.

Woodhouſelie is remarkable for three ſtately ſilver firs, about 80 years old. In March 1759, Dr Walker, then miniſter of the pariſh, now profeſſor of natural hiſtory in the college of Edinburgh, began to meaſure

meaſure the largeſt. The circumference, four feet above the ground, was 7 feet $4\frac{3}{4}$ inches. In March 1761, it increaſed in circumference two inches; 1 and $\frac{5}{8}$ inches more March 1762. In the middle of July 1763, it had increaſed two inches; $1\frac{2}{10}$ inches more middle of October 1764. Dr Walker, about that time, having been tranſlated to another pariſh, no meaſure was taken till the 1ſt of June 1776, when it was increaſed one foot 8 inches; and $4\frac{3}{4}$ inches more 26th July 1779. It is now 10 feet in circumference. The ſilver fir planted under ſhelter thrives exceedingly, but is apt to be blown down by a high wind. It is heavier and cloſer than the common fir, and conſequently ſtronger. I obſerved attentively poſts of this timber ſupporting a ſhed, which ſtood expoſed to every ſort of weather, yet, during ten years, it was not the leaſt impaired. The cloſeneſs the grain makes it take on a very ſmooth ſurface, which no rain can penetrate, and this preſerves it from rotting. I, therefore, recommend the planting of ſilver fir for general uſe, not only for the reaſon now given,

given, but becauſe no ſort of tree grows quicker.

Sir *Alexander Dick* of *Preſtonfield* is a gentleman well known and univerſally reſpected. Many affect the character of Patriot, but his actions ſhow him to be really ſo. He has been all along attentive to the high roads, as the great vehicle of internal commerce, and he has the gratitude of the public for his reward. For a long time he has been more attentive to the making diſcoveries in huſbandry than in making profit by it, though the latter is not neglected. An entailed eſtate, and a numerous family, require oeconomy. His eſtate, in the neighbourhood of Edinburgh, is one of the earlieſt that ſubſtantial improvements have been beſtowed upon. Excepting the family farm for corn, hay, and paſture for the horſes and cows, it is all in graſs, and has been ſo near a century. Were it opened for crops of corn, no man living has ſufficient experience to ſay what might be the reſult. It is certainly extremely rich, which is evident from this circumſtance, that

that there is a viſible ſpring of graſs during the whole winter, except where the ground is bound up by froſt. No body knows the rent but Sir Alexander and his tenant Robert Gilleſpie. It ſurpriſes me that there is not the leaſt appearance of fog in theſe extenſive incloſures, which generally infeſts paſture of any ſtanding; and that there is none here may, poſſibly, be owing to the richneſs of the ſoil, or to its being very cloſe eat with horſes in the time of winter, numbers of them upon the ground, for which the tenant gets a high price, during the winter, and they eat up every thing that is green; or, perhaps, fog is a plant, that, after long paſture, gives way to the more vigorous plants of graſs. It is hard to ſay, but if the true cauſe can be diſcovered, it may have an influence with reſpect to the management of paſture land. Ploughing it for corn is one certain way of extirpating fog for years; but that method will not anſwer for thoſe who are fond of old graſs. The rent is made, not by the tenant's own ſtock, but by taking in cattle for grazing. A horſe pays 8 d. *per* day, during ſpring and ſummer, 6 d.

in

in autumn; and, in winter, a conſiderable ſum is made by ſheep, beſides that by horſes running on the fog. I had the pleaſure to ſee, in the incloſures of March-hall and Cameron, a numerous herd of fine cows; they may vie with any in Britain. This need give no ſurpriſe, becauſe in no other place of the iſland is there a better market for cows than at Edinburgh. From among the mixed multitude, I ſingled out two finely ſhaped, and, as I was told, they gave a great quantity of milk. They are Scottiſh breed, with a mixture of the Holderneſs. The neck remarkably fine, head ſmall, horn ſhort, and tapering upward, a round carcaſe, ſhort leg, light before, and completely made up behind. They proved to be Sir Alexander's family cows, gave 16 Scots pints, or 32 quarts Engliſh, of milk daily, the firſt two months after calving; rich milk that affords much cream *. They were in excellent order, which ſhows that cows can be got that fatten readily, and at the ſame time give much milk. This is a rare quality among the Engliſh cows that are the moſt eſteemed and afford the higheſt price.

Sir

* See p. 432. Vol. 2. p. 217. 260. and 294.

Sir Alexander, now advanced in years, confines his huſbandry within narrow bounds, chiefly with making experiments. Twelve acres near his houſe ſerve him for kitchen garden, pleaſure ground, and making experiments. His vegetables and roots are raiſed in drills, the intervals hoed with a ſingle horſe in the plough, and the lines with the hand, cabbage, carrot, turnip, potatoe, parſnip, all weighty crops *. Shell marl is an excellent manure for ſuch crops, cabbage excepted, which muſt have dung. Cabbage, it is ſaid, gives no wrong taſte, either to milk or butter, if the decayed blades be cut away, unleſs when ſtored up in the houſe, without air, ſo as to turn muſty. The cows get Savoy kail in ſpring, which carries them on to the graſs in good condition. The horſes get carrot. Parſnips boiled, and mixed with a little meal, are a fattening food to poultry. The addition of a little corn at the end contributes to make the fleſh firm. Turnip is given to ſheep and ſwine; not to cows, becauſe it taints the milk. Melons are raiſed in great perfection; and, after ſerving the family, the market of Edinburgh is ſupplied with the remainder;

* See p. 116. 118. and 120.

remainder; price 1 ſh. *per* pound. His currant wine is excellent, and the currants from the garden produce 2 hhds. annually. This is an example of induſtry which deſerves to be imitated. The farmers round that great town apply themſelves almoſt entirely to corn and hay for making up their rents; and yet there are many profitable articles that might produce money, ſuch as poultry, pigs, houſe-lamb, butter, freſh eggs, &c. that might be raiſed at a ſmall coſt, and ſerve the market with articles that are very much wanted. The dung employed in hot-beds is not loſt; when the ſeaſon is over, it is mixed with ſhell marl, and makes a good compoſt, both for garden and field.

A ſwine-houſe is erected in a covered part of the garden, to be at hand for feeding the ſwine with what can be ſpared out of it. The dung of hogs, compounded with earth and ſhell marl, intimately mixed, make a ſtrong manure for onions, and raiſe a great crop.

The lake of Duddingſton, the property of Sir Alexander, beſides its beauty, is valuable for producing reeds, an excellent covering for houſes. It is ſtill more valu-

able for abundance of ſhell marl, brought out of it by dragging, and uſed both for his own land and for ſale. Sixty bolls laid on an acre, affords a rich crop of corn, and the like quantity laid on an acre of ſour meadow, that yields but a coarſe herbage, ſprat in particular; it ſweetens the graſs, and encourages the finer plants.

This gentleman, among other reſearches for public utility, has raiſed the true rhubarb, from ſeed ſent to him by his friend Dr Mounſie, long reſident phyſician to the preſent Empreſs of Ruſſia, and has brought it to perfection. The drying the root, the only part uſed in medicine, was the great difficulty, and attempted by many in vain. Sir Alexander has ſucceeded to perfection, and his rhubarb is as good as any in the world. His ſucceſs, which, in time, may ſave yearly many thouſand pounds to Britain, was diſtinguiſhed with a gold medal from the Society of Arts, &c. in London. Upon a comparative trial there, it was found better than the beſt of the foreign rhubarb then in England, and exceeded greatly any other cured in Britain.

Sir Alexander favoured me with a copy of a letter from the Society's ſecretary to him,

him, intimating that they had adjudged their gold medal to Sir Alexander for the beſt Britiſh rhubarb, which is in the following words:

SIR, *London, Dec.* 8. 1774.

"I have the pleaſure to inform you, that the Society for the Encouragement of Arts, Manufactures, and Commerce, have adjudged their gold medal to you for the beſt ſpecimen of Britiſh rhubarb. I ſhall take care, Sir, that the medal ſhall be finiſhed as ſoon as poſſible, and ſhall be obliged to you to favour me with a line, informing me by what means you would chooſe to have it conveyed to you.—Some part of your rhubarb has been ſent to a perſon in London whoſe buſineſs it is to form foreign rhubarb into proper ſhapes, and give it a due appearance for ſale, (which is called trimming it); and after it has been ſo trimmed, one of the principal dealers in that commodity in London ſays, the operator has done great juſtice to it, and it is his opinion, as well as the operator's, that preference may be given to Sir Alexander Dick's rhubarb, to the beſt Ruſſia in London,

don, if on trial, in medicine, it has the eſſential qualities Sir Alexander Dick reports it to have.

" He alſo ſays, ' It may be recommended to the gentlemen to keep as much to the ſhape of the piece ſo trimmed as poſſible, in their future preparations of the root.' It will, therefore, be eſteemed a favour if you will aquaint me how the piece may be ſent to you, that you may judge of their form and appearance.

I am, with all due reſpect,

Sir, your moſt humble ſervant,

SAM. MORE, *Sec.*"

I am authoriſed to ſay, reſpecting the eſſential qualities of the rhubarb, that Sir John Pringle, Preſident of the Royal Society, and Sir William Fordyce, both gentlemen of great practice in phyſic in London, attended the meeting of the Society, and informed them, that the rhubarb prepared by Sir Alexander Dick had been fully tried, and frequently preſcribed by them, and they found it every way equal to the beſt foreign rhubarb, from the good effects that attended the uſe of it.

Alſo

Alſo the Royal College of Phyſicians in Edinburgh have univerſally preſcribed it, and have taken it into the laſt edition of their Diſpenſatory, under the name of *Rheum palmatum Linnei* *.

Mr *Finlay* junior, of *Walieford*, poſſeſſes the farm of *Coats*, about a mile from Edinburgh; a comfortable ſituation for a farmer, affording a ready market for every thing produced in the farm, and giving him an opportunity of loading his return carts with dung. The reader muſt not be fatigued with repetitions; and, therefore, I ſhall confine my obſervations to what may afford ſome inſtruction. He prefers potatoes before beans, as a preparation for wheat. I hinted to him that it is tickliſh to repeat this rotation more than twice, without change of crops; for that, if oftner repeated, both crops are diminiſhed in quantity. He ſays, that rank dung from the yard, mixed with horſe dung, is the beſt manure for potatoes, and that ſtreet dung is apt to make them ſcab. From the potatoes the earth is firſt turned into the intervals, and, a while after, a double mould-

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* See Edit. 1783. p. 50.

ed plough is employed, which, at one ploughing, reſtores the earth where it was. Beans are hoed in the ſame manner, with this difference, that a wheel is added, for keeping the plough at the ſame depth when the earth is turned from the beans, which, if once hurt, or removed from their place, grow not again. Six buſhels of beans on an acre produce 10 bolls, ſometimes 12; this is leſs than I have heard of at other places*. He prefers that ſpecies of potatoes that have ſmall red ſpots on the ſmalleſt end, and, therefore, called Redneb, of a large ſize, longiſh, and a yellowiſh colour; not that they are more prolific, but that they are more early ready for market, namely, about the laſt week of July, when the price is at the higheſt. This year Mr Finlay's ſale commenced 28th July; and, 28th Auguſt, I ſaw his day-book, by which it appeared that he had drawn L. 70 for potatoes ſent to Edinburgh. This ſhows the great conſumpt of potatoes in that city, as Mr Finlay has many competitors in that article. He deals much in red clover, ſown with wheat or with oats, there being a great demand for it cut green for horſes. It

* See Vol. 2. p. 55. 62. and 185.

It is ſometimes made hay for two years. After the firſt cutting, in the ſecond year, it is ploughed three times for wheat, which, with dung, produces commonly ten bolls *per* acre. Sometimes, inſtead of wheat, the ground is ſurrendered to paſture for a few years. Mr Finlay's reaſon for thrice ploughing for wheat after clover is, that it is neceſſary to ſubdue the annual weeds that abound in this rich light ſoil, that ſuch a quantity of graſs turned down and not deſtroyed makes the ground hove, and, in froſt, lays the plants of wheat above ground. But I am apt to ſuſpect, that the diſeaſe is owing to quickens lurking in the ſoil; for, when theſe are eradicated, I never found but that a ſingle ploughing after clover produced the beſt crop. On the ground that is broken up after ſome years paſture, the crop is Lincoln barley, upon one furrow only, which never fails.

Mr Finlay, at his farm of *Eaſt Norton*, cultivates turnip. The ſoil is dry, a good ſtaple of earth, on a free bottom, through which water eaſily paſſes. It is eight miles diſtant from Edinburgh, and he ſupplies it with plenty of dung from thence,

thence, even at that diſtance, and finds it anſwer the expence; but his practice there is to take wheat after turnip, which is far from being common. As he never takes turnip but in dry ground, and as all is cleared early in March, ridges are formed on one ploughing, and the wheat ſowed about the middle of that month. This is a new ſyſtem opened to improvers, which ſurely deſerves attention, as Mr Finlay's crop of wheat, done in that way, has never once diſappointed him.

Mungo Ponton poſſeſſes a farm at *Balgreen*, two miles weſt from Edinburgh, who has the voice of the country for him as an experienced farmer. The ſoil is partly clay, and partly a free dry mould. His chief manure is Edinburgh dung, laid on the ground at an expence between L. 5 and L. 6 *per* acre; and yet his rent is high, no leſs than 300 bolls wheat and barley for 153 acres. The great number of annual weeds produced from this manure led him ſome time ago to try the drill huſbandry, the rows at a foot diſtance for admitting the hand-hoe. But, notwithſtanding

withſtanding his utmoſt induſtry, his crops of wheat and barley fell always ſhort of expectation, and much inferior to what were produced in the neighbourhood by broadcaſt. After perſevering eight or nine years, he returned to the common method of broadcaſt, taking care, at the ſame time, to dreſs and clean the ground thoroughly. Beans he continues to drill at an interval of $2\frac{1}{2}$ feet within the drills, which admits horſe-hoeing. Five firlots *per* acre produce commonly from 10 to 12 bolls. In favourable ſeaſons he has got 16 bolls *.

To relieve the ground from conſtant cropping, this ſenſible farmer interpoſes ſometimes hay crops, and paſturing after. Hay he takes two years, ſometimes three, but not without dunging after the ſecond crop. The ground is opened again in the month of June after the hay crop is removed, and a baſtard fallow is given, as termed in that part of the country, with plenty of dung to prepare for a wheat crop. This year I ſaw 60 acres bearing a moſt luxuriant crop of wheat, which I cannot eſtimate at leſs than ten bolls *per* acre. Beans follow, ſown as above; but in this

* See above, p. 376.

caſe without dung. Barley, and then oats with graſs-ſeeds, finiſh the rotation on the heavy ſoil.

Potatoes with dung are planted on light ſoil, kept clean with hoeing. Wheat ſucceeds, then peaſe, then barley or oats with clover, and laſt a baſtard fallow.

Mr Ponton is accurate in his obſervations, and he profits by them. He is clear that a potatoe crop is not a robber *; and he ſhowed me a notable good inſtance of it. The half of a field, which was clean and in good order, after bearing oats, it was covered with well digeſted dung, two ploughings given, and wheat ſown. The other half, which had carried potatoes with rank dung from the ſtable, was ſown with wheat immediately after the potatoes were taken up. I ſaw both parts, and agreed with Mr Ponton, that the wheat on the potatoe part would return at leaſt two bolls *per* acre more than the other part.

Peaſe that fall by boiling, commonly called pot peaſe, are much uſed in Scotland, though hitherto almoſt totally furniſhed from England. Mr Ponton led me to a field of his carrying a crop of that ſort

* See vol. 2. p. 153.

ſort of peaſe, a better, in appearance, one could not wiſh for. This pea thrives beſt in a dry eaſy ſoil. It is a meliorating crop, and at the ſame time gives a good price, much the ſame with that of wheat. I am rejoiced to find a ſpirit in this country for preventing importation by home crops. This leads me to Mr Thomſon, who has a farm near Leith. He deals in pot peaſe; and the current price he pays for them in London, is 5 s. *per* buſhel, beſide the freight. He has lately erected a mill for ſplitting peaſe of this kind of his own growth. I wiſh him heartily ſucceſs, as I do to all true patriots who regard the intereſt of their country. Mr Thomſon is much more deſerving of that name than our incendiaries at London, who, under the thin veil of public good, have nothing at heart but to diſturb every meaſure of government, in order to get into power and profit.

I cannot paſs by a farm occupied by one *Francis Feals* a Hungarian. His wheat, beans, and barley, are good. He has a fine ſoil; but I wiſh it may be able to bear the high rent it gives, no leſs than

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five firlots of wheat, five of barley, and 20 s. for each acre.

Dr *Monro*, profeſſor of anatomy in the college of Edinburgh, may be ſaid to have pitched his tent in pleaſant places. The ſoil of his eſtate near Collington is good; and that part he has choſen for a villa will make moſt grateful returns. Cultivated as it is by his direction, even in the ſhort ſpace of two or three years, the appearance is much altered to the better by planting, incloſing, manuring, and garden-making. He has acquired a great name for anatomical knowledge: I doubt not but in time his reputation may riſe as high for knowledge in huſbandry.

Mr *Inglis* of *Redhall* has exerted great taſte in his ornamental improvements, which are known to all the world, and are not my preſent theme. But, in the midſt of his embelliſhments, he has given due attention to farming. I paſs over what is ordinary, ſuch as planting, incloſing, dreſſing of ground, &c. confining myſelf to improvements that are not common. Woollen

len rags he deals much in. They coſt 3 d. the ſtone Scotch weight. The cutting them ſo ſmall as that no piece be larger than half a crown, coſts 3 d. the hundred weight, which advances the charge to 18 pence the hundred weight. Mr Inglis reckons upon $2\frac{1}{2}$ ton weight, as ſufficient to manure an acre of poor land, which brings the expence of one acre to about L. 3 : 15 : 0. Before the laſt furrow, the rags are equally ſpread upon the fallowed field, and ploughed in with a ſhallow furrow. The crops are wheat and barley with graſs-ſeeds, and the crops are good. I cannot, however, approve of barley after wheat. Mr Inglis ſhowed me the fourth crop of hay after manuring with rags, at the rate of 200 ſtone *per* acre; but I muſt add, that the ground is naturally good; and I muſt add alſo, that hay is by no means a robbing crop, where the graſs is cut before the ſeed is formed.

Our improver prefers this manure to the dung brought from Edinburgh. Conſidering the diſtance, the increaſed price, the expence of ſcraping the ſtreets, and the weeds propagated by it, he holds that more

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is paid for that ſort of dung than it is really worth. At the ſame time, rags are not his only reſource. He neglects no opportunity of procuring tanners bark, the refuſe of fulling-mills, ſoap leys, waſted leys of a bleachfield, earth from high-roads ſcraped together; all larded on his dunghill, make a rich compoſt, and free from weeds. The ſal-ammoniac work at Edinburgh produces much refuſe, which is uſed by him for top dreſſing, not only of graſs, but of wheat.

I take my leave of this place, after praiſing Mr Inglis for the care he takes of his hedges, particularly his ſecuring them againſt ſheep and other cattle, by lining every ditch with ſtone. This operation is expenſive, but it is ſalutary.

Robert Wight, forty-four years ago, took the farm of Kingſknow, naturally a thin and poor ſoil upon rock, a high ground, and rendered ſtill worſe by miſmanagement. For the firſt ten or twelve years, it was a hard ſtruggle between him and the land which ſhould get the better. The firſt thing that turned the balance in his favour

vour was the being employed to carry building ſtone to Edinburgh from a quarry in his farm, which gave him the opportunity of bringing home his carts loaded with Edinburgh dung. He was the firſt in that part of the country who attempted levelling the ſurface, ſtraighting the ridges, raiſing potatoes and turnip in the drill huſbandry, ſowing red clover for ſummer food, and graſs-ſeeds for hay and paſture, incloſing with ditch and hedge, &c. All theſe, particularly the ſmothering crops, have turned to great account; and now, by ſkill and perſeverance, his returns from his farm are ſufficient for comfortable living, and for rearing up his children to gain their bread in a way ſuitable to their ſtation; and, laſtly, ſo many years remain of his leaſe, as, in all probability, will equal his life; by which he has the proſpect of enjoying, in his old age, a pleaſant ſpot, made ſo by his own labour and induſtry. It is at the ſame time no ſmall comfort to him, that, having finiſhed all the rough and laborious work in his younger years, it will be a pleaſure, rather than a toil, even for an old man to preſerve his farm in perfect good

good order. I mention this chiefly as an example to all good farmers to make hay while the ſun ſhines; to be induſtrious during the vigour of youth, in order to have eaſe and plenty in the later ſtages of life.

The ordinary modes of huſbandry are more than exhauſted in my former reports; I therefore confine myſelf to what are leſs common. This notable improver feeds ewes and lambs with red clover in a graſs field, where they are confined within hurdles or flakes, and the clover put into racks. The hurdles are moved from place to place, and the field is richly manured. Lime is ſpread at the rate of between 80 and 100 bolls of powdered lime *per* acre. It is ploughed in during winter or ſpring, as beſt ſuits the ſoil; and oats are ſown; then barley after two or three ploughings, peaſe, wheat, and barley with graſs-ſeeds. The goodneſs of the crops teſtify the excellency of this plan. The lambs generally draw above ſix ſhillings a head, and the ewes a ſhilling more than ſheep do paſtured in an incloſure; all are delivered to the butcher before the end of September.

September. This improver, however, muſt not paſs without cenſure. Five crops, and one only broad-leafed, cannot be juſtified; and ſtill leſs to finiſh the rotation with wheat and barley. He knows better things; and he can have no excuſe but plenty of dung from Edinburgh, at the diſtance of three miles. But this is no juſtification; for he could turn this dung to better account by more gentle cropping.

Flax after turnip does well. Mr Wight frequently gets from L. 5 to L. 6 Sterling of rent *per* acre; the holder at all expence, tillage and harrowing excepted. This ſhows how valuable a crop flax is; eſpecially as, by hand-weeding, annuals are totally deſtroyed, which riſe in great quantity from Edinburgh dung. With the lintſeed graſs-ſeeds are ſowed; and in no other way do graſs-ſeeds proſper ſo well. Mr Wight turns ſome ſwampy ground he has to great account by planting hoop willows, after turning up the ground into beds to keep the ſurface dry. The beſt ſpots draw yearly about L. 5 Sterling *per* acre, and the worſt about L. 3. There are in the low parts of Scotland many

ſwamps that cannot otherwiſe be turned to account. The demand for hoop willow is daily increaſing; and yet very little care is taken to ſupply the market.

This experienced improver recommends oxen mightily for every huſbandry operation. He has conſtantly a ſet for the plough, and they go frequently in pairs without a driver. They are not inferior to horſes in harrowing. They are ſhod, as much of his land is ſtony. They never touch corn. Their ordinary food, twice a day, is cabbage and turnip while in ſeaſon; and when theſe fail, hay once a day during ſeed-time. His neighbours are beginning to follow his example. What pity it is that this practice has not yet become univerſal.

The eſtate of *Corſtorphin* is one of the many in Scotland, which, being ſtrictly entailed, was ſuffered to lie unimproved from generation to generation. Sir Alexander Dick, the preſent proprietor, of whom we have found great reaſon to make honourable mention above, could not longer bear the trammels of a ſtrict entail. He

He ſtept forth as the champion for obtaining from parliament relief to himſelf and others in Scotland who were under the ſame predicament. Accordingly, he met frequently with noblemen and gentlemen in the country, who chearfully joined him in making the application, and at laſt obtained the much wiſhed for act of parliament, about a dozen of years ago, which is now well underſtood by every poſſeſſor of entailed eſtates, and the encouragement it grants to every incumbent for improving their lands, without prejudice to the younger children of their families.

Sir Alexander no ſooner gained the prize he had long ſtruggled for, than he ſet about improving this eſtate of Corſtorphin, by granting leaſes in terms of the act, and giving his tenants every encouragement they could hope for to lay out money on the various branches of improvement, and did not with-hold his own money alſo for carrying on a real and ſubſtantial improvement on this eſtate; the good effects whereof is now conſiderable, and the face of the earth on it may now be ſaid to be changed from a degree of poverty, which

a tenant poſſeſſing without a leaſe, or on a very ſhort one, will always hold it in. To incloſe fields and fertile lawns, groaning, as it were, year by year, under the burden of weighty crops of corn or hay; a bleſſed change both to landlord and tenant!

Here I muſt not paſs unnoticed Mr *Johnſton* in Corſtorphin, his farm, although I have neither time nor room to enter into particulars; but the effect of his induſtry evidently appear on every field; the tillage is good, the land is clean, wheat excellent, and all the other crops in proportion. An old improver might take a leſſon in huſbandry from the practice of cultivating and cropping this farm.

Mr *Edgar*, about 20 years ago, obtained from the Earl of March a leaſe of a farm near Edinburgh for 57 years; and indeed a ſhorter leaſe was not a ſufficient encouragement for the money neceſſary to be laid out on a farm in the very worſt order. It had been run out by ſevere cropping and bad tillage; the fields wild

and

and irregular; a broad baulk between the ridges full of ſtones tumbled in from the ploughed parts; all the flat ground drowned with water, and moſt of the year a lake. The effect of this long leaſe was, firſt, a neat houſe with proper offices; next, trees planted on the heights for ſhelter, ſtone fences in the pooreſt parts, and hedge and ditch where thorns would grow. The baulks were freed of ſtones; every field levelled, and the ridges ſtraighted; dung brought from Edinburgh in plenty; and the whole arable part of the farm highly improved in a few years. But it may be taken for granted, that the draining of the ſwampy ground was not altogether neglected during theſe toilſome operations. It is now drained at a very conſiderable expence; and what part is under the plough is done up with art for keeping it dry in all ſeaſons.

In the courſe of draining, there was an appearance of ſhell-marl, which Mr Edgar graſped at with avidity, piercing deeper and deeper till he found it eight feet below the ſurface. Of theſe eight feet there were firſt four feet of moſs, and then four

four feet of a ſoft ſubſtance. Theſe may be uſeful in a compoſt dunghill, but ſcarce worth the expence of removing, were it not to come at the marl. For want of a level to carry off the water, pumps are uſed, wrought by a horſe. Though the expence on the whole is great, yet Mr Edgar proceeds with reſolution. The bed of marl is indeed four feet thick, but far from being pure, being mixed with moſs. He has got already about 1500 cart-loads, of which he has laid 60 loads *per* acre on light land, and 80 on ſtrong. The effect is not diſcouraging.

A ſtack-yard in the neighbourhood drew my attention, in which there were no fewer than eleven ſtacks at the end of June, the fields well dreſſed, beans in drills, cabbage, turnip, kail, and potatoes. In the centre a neat houſe with offices. This proved to be Mr *Steuart*'s of *Eaſtcraigs*. He farms no more but 85 acres; though I ſhould have gueſſed, from the appearances above mentioned, a much greater quantity. As his cropping differs little from what now begins to be common, I ſhall mention

mention it in a word. When he opened his uncultivated fields, he took oats, wheat after fallow with dung, barley, hay, and paſture for ſome years. Breaks up again with oats; beans in drills with dung, wheat, barley, and graſs. I find no fault but with barley after wheat.

Mr Steuart has a ſmall dairy of four cows. They are bred here, and give from 12 to 14 pints of milk daily during ſummer. The butter and butter-milk are ſold at Edinburgh, diſtant four miles. The dairy is managed by Mrs Steuart with great care and accuracy. She ſhowed the book of her weekly accounts, in which is fairly ſtated no leſs than L. 62 : 1 : 10 as the return of the laſt year's product *. Are not theſe cows, then, far ſuperior to the long horned cows of Lancaſter breed †? Ought not this to rouſe every farmer who loves money, that is, every farmer, to turn his thoughts to a dairy, who lives ſo near Edinburgh, where people are willing to pay the higheſt price for good butter, and yet cannot procure it for money? During winter and ſpring, the cows are fed on cabbage,

* See above, p. 432.

† See above, p. 364. and vol. 2. p. 8.

bage, turnip, or kail, thrice every day, on a dry graſs field. It is ſaid cabbage gives no bad taſte to milk or butter, provided the rotten leaves be laid aſide; but turnips do; and, to prevent the bad taſte from turnip, or any chance thereof that may be from cabbage, a pint of freſh water boiled and put ſcalding hot into ten pints of new milk, cooled gradually in proper veſſels, and then churned, leaves no bad taſte. I believe the effect will be fully as well anſwered by putting the pale and the milk into ſcalding hot water immediately after milking, and by ſtanding in the water a quarter of an hour, any bad taſte from the cabbage or turnip will go off by evaporation. A ſafer method than mixing with water, as careleſs ſervants may put in too much, and degrade the milk.

The appearance of *Captain Ramage*'s improvements cannot fail to attract the attention of every paſſenger, though they are the work of two years only. In the hands of an ordinary improver, ſeven might be allowed. The ſoil is not inviting, a cold thin clay; yet the appearance of the Captain's hedges in that ſhort ſpace is ſurpri-

ſingly

ſingly good, owing to the ſkilful training of them.

That country is much indebted to Mr *George Reid* at *Ratho* on ſeveral accounts. His patriotiſm in the memorable years 1745 and 1746 is known in England as well as in his own country. His ſucceſs in eſtabliſhing a conſiderable trade in malting, brewing, and diſtilling ſpirits, many years ago, and his giving an example of good huſbandry at the ſame time, entitle him to public regard. I paſs over the general improvements Mr Reid has made in his farm of Ratho, all like a garden, and proceed to take notice of a few ſpecialities differing from the common practice of farming in this part of the country. He adheres to a regular rotation from corn to graſs and from graſs to corn, keeping his ground always clean from couch-graſs and other weeds. His turnip and drilled beans are remarkable. No ſooner does a weed appear than it is deſtroyed, either by the hand or the plough. Black cattle and hogs are fattened with turnip and the refuſe of his brewery and diſtillery. No

means are neglected for increaſing his dunghill. His cows are of the country kind, a mixture of the ſhort horned with thoſe of Holderneſs. The firſt three months after calving, they give 16 pints of milk daily. During winter, they are fed with turnip and chaff boiled together, and ſtraw for dry food. With the milk of theſe cows, which are no more than four in number, there are 18 calves fed every year, each calf getting milk no longer than eight weeks. They are early put on old graſs, but tethered in the field, ſo as to prevent them from ſucking one another, which Mr Reid has found by experience to be extremely hurtful; and yet he is the firſt that I know who has uſed that precaution. This ingenious farmer has been rewarded for his labour, which has enabled him to make conſiderable purchaſes of land in the neighbourhood.

Mr *M'Conochie* advocate is indefatigable in the improvement of his eſtate of *Meadowbank*, a very ungrateful ſoil, a high expoſure, and, what is ſtill worſe, a till bottom. But he does his duty as a good

good citizen, which is to make the moſt of the ſituation providence has allotted him; and, after all, the man who, by induſtry, makes two talents of one, has equal merit with him who makes 20 talents of 10. Lime is the only manure within his reach, and he makes great uſe of it. But lime alone is ſcarcely ſufficient for the ſoil. Were he within reach of a town for dung from the ſtables and ſtreets, he would do wonders; for ſuch manure is the only thing that can ſubdue ſuch a ſoil, ſo as even to give it a new nature. The great object is to give heat and ſhelter in this cold region. He incloſes with ditch and hedge, ſhelters his fields with ſtrips of planting, and makes ſmall incloſures. Graſs is his capital object; and he acts judiciouſly, as graſs is a rare commodity in that country. Though the tenants hereabout are in great ſcarcity of graſs, none of them ever dream of incloſing; yet the generality deal in horſes or horned cattle, which makes them graſp at every graſs incloſure that is to be let.

Of all men, thoſe who are bred to buſineſs have the beſt chance of ſucceeding in

in every laborious undertaking. There belongs to Mr M'Conochie a very extenſive tract of bare land from his farm ſouthward, riſing gradually to a conſiderable height. It is too ſtubborn and cold for corn; but, upon being well dreſſed and limed, would make a comfortable ſheep paſture. I wiſh him ſucceſs with all my heart; and every one will concur who knows him, and regards the intereſt of his country.

Many experiments for promoting general utility in huſbandry are now carrying on by this ingenious and public ſpirited gentleman. They are curious and intereſting; but, to mature them, will require much attention and long time. I do not doubt, however, of being favoured with a ſatisfactory reſult of his ſucceſs, ſo as to be publiſhed for the information of every one deſirous of making improvements in huſbandry *.

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* Many obſtructions occurred in the courſe of the laſt three years, from the uncommon peculiarity of the ſeaſons, which have prevented any certainty of progreſs in the experiments, by which Mr Macconochie can yet rely upon the reſult, ſo as to be uſeful to the public.

I congratulate this corner upon Dr *Cullen*'s late purchaſe of *Ormiſton-hill*. His great talents are not confined to medicine alone. I have reaſon to know that he is thoroughly acquainted with every branch of agriculture, both in theory and practice. Already, during his ſhort poſſeſſion, his turnip and wheat make a figure. He will prove a bleſſing to the neighbourhood, both by example and precept. How deeply do I lament his ill luck in not waiting for a lot of the eſtate of Winton. There he would have done wonders, and in that fine ſoil given examples of good huſbandry, even to the beſt farmers in Scotland.

Meſſrs *Alexander M'Conochie* and *James Walker*, writers to the ſignet, have done great things on their little eſtate of *Limefield*, ſouth of Mid-calder, where good huſbandry is a ſtranger. At the commencement of their operations, the land was quite worn out by bad huſbandry. In the ſpace of five years, are now to be ſeen no fewer than 150 acres covered with good graſs and corn, to the aſtoniſhment

of

of every perſon formerly acquainted with the farm. The whole has been ſummer fallowed, with the addition of lime and dung for the firſt crop, and graſs-ſeeds ſown with that crop. They have found their reward in that method of culture; and it will be ſtrange if their ſucceſs do not rouſe their neighbours from a long night of ſleepy indolence to lay hold of the prize they now ſee within their reach.

A lime-ſtone rock within the farm was a tempting circumſtance. It is an edge ſeam, and the entry to it ſo capacious as to give acceſs to a horſe and a cart to be loaded cloſe to the quarry, and water at hand to ſlake the lime.

Their fences are chiefly ſtone dikes, perfectly complete; many thouſand trees are planted in clumps and ſtrips; not a bit of ground miſſed that lies out of the reach of the plough. In a ſcore of years the ſhelter will be great, and the profits alſo, in a country thin of timber.

The three eſtates laſt mentioned, lying in a line, might have remained for ever in the ſtate of nature, but for the advocate, the phyſician, and the writer, men bred

bred to buſineſs, who generally ſucceed, whatever be the undertaking. Ought not this to be a leſſon to every man to breed his children early to buſineſs? I would not except even the apparent heir of an opulent fortune. On the contrary, to breed him to buſineſs is the only way to preſerve a young man from indolence and vice, or the violent temptations that a great fortune ſubjects him to. And after the pleaſures of youth have loſt their reliſh, how unhappy muſt be his ſituation to ſit down indolently, without any motive for induſtry or occupation!

Mr *Ingles* of *Grayfield* poſſeſſes a neat houſe, ſurrounded with incloſures. As a farmer, he makes a figure by his improvements on an ungracious ſoil. I ſaw a fallow field tolerably dreſſed; but I was ſorry to obſerve ridges ſtraighted before the ſurface was thoroughly levelled, the old crowns appearing bare and ſcalpy. I looked into one field with ſatisfaction, on account of a tolerable hay crop. I obſerved, while the mowers were at work, the ſeed of the ryegraſs falling out of the huſk

from

from over-ripeneſs. Had it been cut more early, the hay would have been better, and the quantity greater. New beginners are apt to fall into ſuch errors; but, as I have little doubt that experience will teach this gentleman to avoid every error, I mention theſe particulars for the ſake of others.

I am happy to obſerve the progreſs of improvements in Edinburghſhire carried on by many gentlemen who have public utility at heart. There are, beſide, ſeveral farmers of capital ſtocks, who have laid out their money with ſucceſs in raiſing excellent crops both of corn and graſs. The culture of potatoes ſpreads yearly wider and wider; and a great bleſſing it is to the poorer ſort, who have food at an eaſy rate, without the expence either of mill or kiln. It is my ſincere opinion, that, if it had not been for this moſt valuable plant, the ſcanty crops of corn for many years paſt muſt have deprived Scotland of many of its inhabitants. We ſhould never have been able to furniſh ſuch numbers of men to recruit his Majeſty's forces in the late foreign wars, when

men

men were ſo much wanted, nor ſupplied the preſſing demands at preſent with ſuch numbers as the loyalty and heroiſm of Scotland have done. Potatoes poſſeſs the great advantage, that the market can never be over-ſtocked; for horſes and horned cattle are always at hand for their conſumption, when there are more than our people have a demand for. Corn depends much on good or bad ſeaſons, potatoes very little, as we do not recollect of any great failure in the crop of potatoes; and it is my opinion, that, if the culture of potatoes be continued with ſpirit, ſeldom will there be cauſe for a dread of famine.

The culture of turnip, cabbage, and kail, is not much ſpread in this county; but here a clay ſoil, with a till bottom, prevails, which is very unfavourable for theſe plants.

WEST LOTHIAN, OF LINLITHGOWSHIRE.

THIS is a chequered county; good and bad ſoil; high and low land; the ſouthern parts muiriſh, as well as high. The climate, at the ſame time, is not the moſt favourable for corn, by the quantity of rain that frequently falls; a great part of the county is ſtill remaining in the ſtate of nature. We meet, however, with frequent inſtances of bold adventurers in the huſbandry line; and, in the lower parts, much has been done within the laſt twenty years, which will beſt appear from particulars.

Although the Earl of *Hopeton*'s lands in his natural poſſeſſion, meaſuring no fewer than 1500 acres, are all in graſs, and never allowed to be ploughed, it would be unpardonable to with-hold from the public his Lordſhip's mode of management; for it is an illuſtrious example, worthy of the imitation of gentlemen of fortune who incline to have their fields in graſs.

The

The Earl's farm is all incloſed, and the incloſures well watered and completely fenced, partly with walls of ſtone and lime, and partly with ditch and hedge; the ditches are lined with ſtone, which ſecures the hedges from ſheep and horned cattle. The incloſures are of various ſizes, accommodated to the different kind of animals that paſture there, as well as to the viciſſitudes of weather, heat and cold, wind and calm. Different, indeed, was the ſoil, rich and poor, dry and wet; but, by the Earl's artful culture, theſe differences are ſcarcely now to be perceived. The poor ſoil is enriched, being frequently overlaid with dung thoroughly rotted, and rich compoſts made up of different materials. The wet ſpots are made thoroughly dry by drains under ground, or on the ſurface. Great care is taken never to permit the paſture to be overſtocked, nor to be eat too cloſe, ſummer or winter. Nothing can be more beneficial than this practice, either to the land or to the cattle that feed on it; and yet very few keep ſtrictly to this mode of management. Is it a wonder that they are ſo frequently diſappointed in the returns they

they expect? Not a thiſtle nor any ſtrong weed is to be ſeen in theſe extenſive incloſures. It is cut down as ſoon as it appears, by a careful perſon appointed for that purpoſe. In ſhort, if hay and paſture lands are any where to be found in abſolute perfection, or the higheſt fed beef and mutton, it is here. I cannot forbear giving one inſtance of the laſt, out of a thouſand. A bull bred and reared here, which never had any other food but graſs, except hay thrown to him in the field during winter, was ſold to a butcher for L. 10. The four quarters weighed 13½ hundred Engliſh, which was not extraordinary; but his tallow weighed 11½ ſtone Scots, which was not a little extraordinary in a bull. The butcher's profit on this beaſt was about L. 10.

The Earl's way of filling his incloſures with graſs plants proper for them, is curious, and well worthy of imitation. After an incloſure has been long in graſs, he views attentively the plants that make the beſt figure in it; and the ſeed of theſe plants is ſown in a ſoil of the ſame kind, which never fails to ſucceed. This country abounds with variety of uſeful graſſes.

Were

Were theſe more cultivated, and their ſeed transferred to ſoils of the ſame kind, we would have fields of graſs much richer and more beneficial than thoſe covered with ſaintfoine, lucern, timothy, and burnet. If a nobleman of an opulent fortune give ſuch attention to the improvement of land, is it not a ſhame that men of ſmall fortunes, to whom profit is much more neceſſary, ſhould not follow the ſame courſe? But the proverb, 'that far fowls have fair feathers,' is verified in huſbandry as well as in other articles. We fly to every thing that is new or faſhionable, having little regard to intrinſic merit.

A large bank of ſea-ſhells being diſcovered on the ſea-ſide, a quantity of ſhells were ſpread on a graſs field for an experiment, and powdered lime in another field. The quality of the graſs was much improved by both, and was much more reliſhed by the cattle. But the quantity was not increaſed, ſo far as could be obſerved. Nor ought this to be wondered at. The firſt crops of ſown graſſes are conſtantly the greateſt in quantity. By conſtant eating, the plants dwarf and become ſhorter and ſhorter. A graſs plant, like a tree

tree once dwarfed, can never after, by any manure, be raiſed to a full ſize. I know that farmers differ about this, led by accidental inſtances they are acquainted with, without ever having made a fair experiment. One pointed experiment I can give, that to me appears deciſive. Two incloſures of the ſame ſoil were laid down together with graſs-ſeeds of the ſame kind. After two years hay, the one was ſurrendered to paſture. From the other, every other year a crop of hay was taken. After ſeven years abſence, the proprietor returned home, and needing a quantity of hay, both fields were preſerved for that product. Would not any one ſay that the incloſure ſo long paſtured would return the greateſt crop of hay? Yet the contrary was the fact; for which no reaſon can be given, but that the growth of the graſs was encouraged every other year, by allowing it to grow to its full ſize before it was cut.

After giving an account of the paſture, it will not be ſurpriſing to find here the largeſt cows, and in the higheſt order. His Lordſhip has made trial of every kind,

kind, and approves of the Holderneſs kind, ſhort horned, mixed with the beſt kind of Scotch cows, particularly of the Highland or Sky kind; which, with a well choſen bull, make a fine breed, giving plenty of good milk and butter, and yielding in general the greateſt profit. I viewed with pleaſure a few Derbyſhire cows, well choſen. I have not ſeen their equals any where, not even excepting Mr Bakewell's. In particular, they give more milk than any I have ſeen of that kind. Theſe cows, with a fine bull of the kind mentioned above, would produce a charming breed.

In former ſurveys I have noted many inſtances to improve ſheep and wool by rams from England, particularly thoſe of Mr Bakewell. I ſhall now add what I ſaw at Hopeton-houſe. The rams bred here from thoſe of Bakewell's kind, are not inferior to thoſe from which they were bred. The Earl continues to give the uſe of his rams *gratis* for improving our breed, which anſwers every expectation, when the ſheep are put upon rich paſture. Their wool weighs eight or nine pound *per* fleece. The manner of ſhearing is copied from

from England, it is ſo cloſe to the ſkin that not a pile of wool is left. This is condemned by the Earl, who judiciouſly obſerves, that the bare ſkin being expoſed to the extremes of heat and cold, is hurtful to the ſheep, and hinders them from thriving till they be covered in ſome meaſure with the wool.

Here I was taught, that the ſpruce fir, by its conical ſhape and thick foliage down to the very ground, makes the very beſt ſhelter for other trees. And here I was alſo taught that the larix, a faſt grower, and taking kindly with every ſoil, has an additional quality, that it loſes leſs of its weight by drying than any other pine; which muſt be owing to the ſolidity and compactneſs of its texture.

The princely ſeat of the Earl, the magnificence of the gardens, pleaſure grounds, the ſpacious park that ſurrounds part of them, inhabited by a numerous and beautiful herd of deer, the extenſive plantations intermixed with foreign plants, and many other beauties, are known to all the world, and attract foreigners from every country. But I muſt deny myſelf the pleaſure

pleaſure of inſiſting upon theſe, as they do not come under the inſtructions given me by the Honourable Commiſſioners.

In the management of his extenſive eſtate, the Earl gives every encouragement to his tenants for improving, that of long leaſes in particular, without which no improvement can be expected from tenants. I proceed to give a ſpecimen of ſuch of his Lordſhip's tenants in this county, as are the moſt remarkable for improvements.

John Allan at Kirkliſton, having agreed to take a leaſe from the Earl of 130 acres, for three 19 years, began his improvements with ſo much rapidity, that the Earl, when the leaſe was executed two years after, made the three 19 years to commence at that date, which was adding two years to his poſſeſſion. And the favour was well beſtowed; for he perſevered with the ſame induſtry to reclaim ground that had been in very bad management, much of it poor, and over-run with whins. Incloſing with hedge and ditch was his firſt care, and his hedges are in good order. He cleared the whins, and fallowed the

ground two years. The ſecond ſummer, dung was applied in abundance; and, before the laſt furrow for wheat, 60 bolls of lime-ſhells were ſpread on each acre. The crop was excellent; the next, peaſe with one furrow, was alſo good; then barley after three ploughings with graſs-ſeeds, all good. I viewed the crop of graſs on the ground intended for hay, and admired the crop, conſidering the two white crops preceding, wheat and barley, which, in this weak ſoil, was too much, even though a crop of peaſe intervened.

Though this farm is eight miles diſtant from Edinburgh, yet Mr Allan makes no difficulty to bring dung from thence. On his beſt land, when ſummer fallowed, he beſtows L. 5 worth of dung on each acre, with the addition of 60 bolls lime ſhells, which coſt him L. 3. This is not a little expenſive; but, after 20 years experience, Mr Allan finds his account in it. This fact I the rather mention, as it may be an inſtruction to other tenants who will heſitate to lay out ſo much money on dung. His beſt fields are thus managed; wheat after fallow, from 12 to 15 bolls *per* acre.

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The next crop beans in drills, the ſeed, ſix firlots *per* acre, produce from 13 to 14 bolls; barley, after three ploughings, ſometimes four when thought neceſſary; the produce from eight to ten bolls *per* acre. Clover and ryegraſs ſeed, ſown with the barley, give a conſiderable crop of hay, and then a few years paſture; after which the land is opened for a crop of oats, which finiſhes the rotation, beginning again with ſummer fallow as before.

In the neighbourhood of Kirkliſton the ſoil is capital, and the crops weighty, when aided with lime and dung. I might mention here ſeveral other tenants of his Lordſhip's; but, to avoid being tedious, I confine myſelf to Mr *Fleeming*, manufacturer of linen cloth in the town of Kirkliſton, who, having a natural propenſity to agriculture, has taken a little farm in the neighbourhood, which he keeps in excellent order. His crops are extraordinary, ſuch as might ſatisfy the moſt expenſive improver; and yet he has the art of obtaining theſe crops at an eaſy rate, chiefly by a frequent and well timed uſed of the plough

plough and harrow. A ſmall field, at preſent under wheat, muſt not be overlooked. It is a gently ſloping bank, the lower end wet, and the remaining ſurface rough and rugged. It was made dry by under drains, and the ſurface levelled with ſpade and mattock in one ſummer. Thus prepared, it was ſummer fallowed with two horſes in the plough. But, as the ſoil was looſe by former handling, Mr Fleeming avoided pulveriſing it too much. The wheat makes a good appearance, and is beſt where the ground is cloddy. Clods are always friendly to winter crops, unleſs when ſown under furrow. This field cannot be called a rich ſoil; and yet the crop was fine, tho' no manure was applied to it. This effect muſt be aſcribed to the two years labour beſtowed on a virgin ſoil, expoſed to ſun and wind, heat and cold, two ſummers and a winter.

Before I leave Mr Fleeming, I muſt take notice of another field of good ſoil upon a free bottom, that holds no more water than is ſufficient to nouriſh its plants. It was thoroughly ſummer fallowed, richly dunged, and cropped as follows; wheat, peaſe,

peaſe, barley after four ploughings, each of them excellent crops. Graſs-ſeeds were ſown with the barley, viz. 16 lib. red clover, and half a boll ryegraſs. No leſs than 315 ſtone of dry hay was the product *per* acre, weighed in preſence of the purchaſer. How pleaſant and advantageous it is to labour good land! No being, animate or inanimate, is more grateful for the culture beſtowed on it.

Mr FLEEMING's *Experiments on Blacked Wheat.*

"I this year ſowed in my garden, on the 13th November, ſix grains blacked or ſmutty wheat, ſix grains ſound wheat rubbed with black or ſmutt, ſix grains of wheat apparently ſound, that I found on a blacked head, and ſix grains of the beſt wheat I could find. I ſhall attentively notice the progreſs, and mark every apparent change in any of the kinds.

"My reaſon for ſowing the firſt was, to be ſatisfied if ſmutty wheat would vegetate or not; for I have heard it aſſerted it would. My reaſon for ſowing the ſecond was, becauſe I have heard it aſſerted that

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the ſmutt prevented vegetation in ſound wheat, (which was an expreſs contradiction of the firſt). Much the ſame reaſon induced me to ſow the third kind; and the laſt I had no particular reaſon for, but to complete the experiment, by ſowing all the different kinds of wheat, or rather different preparations, I could. None of them have as yet appeared, owing, I ſuppoſe, to our moſt diſmal weather; but I have ſtill a black or ſmutty head beſide me. I am determined, if none come up in eight days, to ſow ſome more *. I am proud to find my opinion, with regard to ſmutt, coincide ſo much with that of a perſon of your knowledge and extenſive experience."

Thomas Young's farm of *Ingliſton-mains* I recommend as a pattern of excellent culture. No man living employs the plough more advantageouſly than he does, of which every field in his farm bears teſtimony. I obſerved one large field with drilled beans, hoed both with the plough and hand; yet an adverſe ſeaſon will ruin the beſt conducted crop. A gravelly ſoil, full

* The experiments were not finiſhed when this went to preſs.

full of hot manure, muſt ſuffer in this droughty ſeaſon, and produce a very poor crop. The long leaſe he has from the Earl has encouraged him to be aſſiduous in incloſing. No quicks I ever ſaw are trained more carefully. Had he ſpared the labour of clipping with ſhears, his fences would have been impregnable before this time. The incloſures are ſo contrived, that the contents of each are of the ſame ſoil and quality. This I recommend as an important article. An incloſure of different ſoils can never be well managed. Viewing an adjacent farm in very bad order, it grieved me to find it in the poſſeſſion of the proprietor himſelf.

I could not paſs by *Newliſton*, formerly the ſeat of John Earl of Stair, who, like the famous Roman general Cincinnatus, was equally expert at conducting the plough and an army. He was the firſt and moſt eminent promoter of horſe-hoeing huſbandry in Scotland. In that mode of huſbandry he raiſed turnip and cabbage to great perfection, followed with graſs ſeeds.

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He raiſed an early ſpirit for huſbandry improvements in this corner, more early than in moſt other parts of Scotland. But alas! what a falling off is here? The name of John Earl of Stair ought to be preſerved in ſacred remembrance by every well wiſher to huſbandry in Scotland.

Humbie, a farm of 500 acres, is by the Earl of Hopeton ſet in leaſe to George Reid for 57 years; a length of leaſe no more than ſufficient for ſubduing a wet ſpungy ground with a till bottom, and fit only for ſo able an operator as Mr Reid. He begun with draining and directing the ridges for carrying off the ſuperfluous moiſture. The ridges are 18 feet broad, and ſo rounded as to let no water ſtand. So attentive was he to keep the land dry, which his ſons, who now poſſeſs the farm, alſo do, that he cleared the furrows every year before winter with a plough. The march fences were done up before the commencement of this leaſe, and the whole is now ſubdivided at the tenant's expence. They have erected a ſpacious dwelling-houſe and offices, proportioned to the extent of the farm,

farm, as alſo a commodious ſet of houſes for malting, brewing, and diſtilling ſpirits. Theſe expenſive operations never could have been attempted but upon a leaſe of a long endurance. The brewing and diſtilling afford great quantities of dung, many cattle being fed on the refuſe, with the addition of clover hay, which ſupply, in ſome meaſure, the want of turnip, which cannot be raiſed to purpoſe in this wet ſoil. There is abundance of limeſtone in the farm, for ſerving their neighbours as well as themſelves.

I avoid mentioning common operations for the ſake of brevity. The attention of our improvers to the dunghill is not altogether new, but uncommon, as great care is taken to mix the hot dung of horſes with the cold dung of horned cattle every day. The dung well digeſted is laid on the ſummer fallow. Lime is another ſource of improvement. Liming on the ſward is preferred, at the rate of 50 or 60 bolls ſhell lime *per* acre, but always at an interval of at leaſt ten years.

Mr *Kid* at *Winchburgh* is another of the Earl's improving tenants, encouraged by a long leaſe. The houſe he built on his farm does him honour, and ſhows not only taſte, but a ſpirit to lay out his money. Here I ſaw every branch of huſbandry carried on to perfection; weighty crops of wheat, peaſe, drilled beans, hoed potatoes, barley, and oats, all of them marks of a ſkilful operator. The thorn hedges on this farm are reared with ſkill and judgment, and preſerved in good order. He never ſows graſs-ſeeds but in land well cultivated, pulveriſed, and in a proper condition for them. Lime is laid on the ſward of paſture graſs, never leſs than 50 bolls of ſhells to the acre; the ſoil, indeed, leans to a ſtiff clay, is of a deep mould, and parts not eaſily with water. A field of this quality, and manured as above, was ſowed with beans. I admired the luxuriancy of the crop, and inquired into particulars, as beans are difficult to be covered. Mr Kid gave me the following account. With a plough tempered to raiſe a narrow ſquare furrow, ſet upon its edge, ſo as that one ſhould not lean on another. The

beans,

beans, when ſowed, drop between the furrows. A few nights of hard froſt in ſpring, which never fails here, meliorate the upright furrows ſo much, that, by harrowing in the ſame direction with the plough, ſufficiency of mould is raiſed to cover the beans completely; and they ſpring up ſo regularly as to give acceſs for hand-hoeing to clear out the weeds, and to promote the growth of the crop. Wheat or barley ſucceeds, and the product proves the utility of this method. Turnip on dry lively ſoil he delights to cultivate; but on no account will he attempt turnip on wet or clay ground. And, for the intereſt of all improvers in huſbandry, I wiſh every one were of his opinion.

Mr Kid is ſkilful in the qualities of the ſeveral kinds of horned cattle, their value, and aptneſs to take on fat. His experience is great, and extent of dealing conſiderable. He never errs in overſtocking his paſture graſs. He is well aware that overſtocking is certain loſs to the grazier, and tends to impoveriſh the paſture. Now that his incloſures are perfectly fencible, his plan is to paſture ſome years with ſheep and

and horned cattle, to lime upon the ſward, in order for a rotation of corn crops, which will not diſappoint his hopes, as he carefully dreſſes every field, and clears it of couchgraſs and other weeds, before it is laid down in graſs.

He feeds many oxen at the ſtall; ſeldom under fifty or ſixty, from thirty to forty ſtone each. In one ſeaſon, 600 or 700 bolls of potatoes have been conſumed by them; and they are a fine reſource when a turnip crop miſgives, or after it is conſumed. Laſt winter he made an accurate experiment in feeding with potatoes, turnip, beans, oats, and barley bruiſed in a mill. He divided his bullocks into three parcels, as equal as poſſible with reſpect to ſize and degree of fat. Each parcel was kept on the ſame food, with one ſtone of hay to each bullock daily. The turnip and potatoe fed cattle ſold as readily as thoſe fed on corn. The quantity of potatoes conſumed daily by an ox was from $2\frac{1}{2}$ to 3 pecks, a large morſel indeed, and expenſive food, which amounted toward 6 d. a day, ſuppoſing potatoes to ſell ſo low as even 2 d. *per* peck. Thoſe, however, that were

fed

fed on the bruiſed corn, coſt ſtill more expence; for they conſumed about three lippies *per* day. And hence it is that there can be no profit in feeding with grain, unleſs it be ſo ſpoilt as not to ſell at market.

The dunghill I admired for the regularity of intermixing the cow and horſe-dung, and both with the ſtraw uſed for litter. The fermentation by this means is gradual, and an immenſe dunghill is raiſed by a regular gradation, while putrefaction advances by ſlow degrees.

Mr *George Henderſon* at *Craigton* farms a greater extent of arable land than any other I have heard of. His ſpirit and perſeverance correſpond indeed to his bold undertakings. The number of acres he has incloſed are above 3000, the moſt of which are already fencible. As he poſſeſſes farms in different parts, the character he has of an excellent farmer ſpreads his influence far and wide, and the farmers round him begin to take him for a pattern. He will prove a bleſſing by promoting huſbandry in his part of the country. In ſo extenſive an undertaking, the moſt refined mode of huſbandry cannot be expected,

pected. Every thing muſt be done by the bulk; and indeed that judicious farmer follows the plan that is the beſt ſuited to his ſituation. The moment he makes his fields fencible, they are let out to graziers at a moderate profit for ſome years. When he takes them up for corn, with lime, dung, &c. that is the time he depends chiefly on for profit. Though I approve heartily of Mr Henderſon, yet I am far from recommending him to my brethren in general. Few have capacity and boldneſs of ſpirit for great undertakings like Mr Henderſon; it is much ſafer for the generality to keep themſelves within narrower bounds. And perhaps, after all, a ſmall farm, accurately and ſkilfully managed, may entitle the poſſeſſor to as much praiſe as a wide extended farm or farms that cannot admit the ſame accuracy. The eſtate of Craigton, the property of the Earl of Hopeton, of which Mr Henderſon has a leaſe, is in very good order. The fields that are in tillage ſhow his expertneſs in modern and improved huſbandry. It were to be wiſhed that the tenants in the neighbourhood would take a leſſon from him. They indeed

deed need it much; but ignorance and indolence are hard to be overcome. Even the motive of intereſt is not ſufficient to rouſe them.

I am now on the borders of the Earl's hunting-field, containing no fewer than 1200 acres, which for the moſt part is capable of great improvement. His Lordſhip is now reſolved to convert this field of amuſement to an uſe more connected with public utility. It is divided into farms of moderate extent, none of them leſs than fully to occupy a plough. There is lime at hand; and there is little reaſon to doubt but that this deſert ſpot will in a ſhort time be converted into rich corn and paſture fields. Much depends upon a proper choice of tenants.

Queensferry is a ſmall town, remarkable for no manufacture but hard ſoap, which is here carried on to perfection. The town ſtands on the frith of Forth, which being here narrower than above or below, is the common paſſage between the north and the ſouth of Scotland. The landing-place, formerly incommodious, is now made eaſy

ſy and ſafe by the liberality of the commiſſioners of the annexed eſtates, who, for the public ſervice, have beſtowed a conſiderable ſum upon it.

Bailie Dick of this place ſhowed me the improvements he has made on his own little farm, drilled turnip and cabbage in good order, wheat and barley excellent, the ridges well directed, and the culture in general perfectly good. I was charmed with the ſpirit of this old man for huſbandry improvements; and I have reaſon to think, that his example will be copied in the neighbourhood. Nature leads us to regard age and experience; and he will find many imitators, who would diſdain to follow the example of men no older than themſelves.

The refuſe of the ſoap manufacture is in great requeſt here for a manure. The price, by means of many competitors, has riſen to four or five ſhillings a cart load, a price far above the benefit it can yield. It ſhows, however, a riſing zeal for huſbandry; and better ſo, than ſuch an indolence and poorneſs of ſpirit, as to neglect

neglect manure that can be had for labour merely, or at a low price.

As I paſſed along, a park of 200 acres ſurrounded with a ſtone wall, and covered with a large flock of ſheep on rich paſture, invited my eye. The quality of the graſs ſhowed me that the ground muſt have been dreſſed to perfection. Nor has the proprietor confined himſelf to this plain operation. Many clumps of trees, diverſified in their form, are ſcattered through the whole, giving a beautiful landſcape, and profitable for ſhelter. I heartily recommend this method to all who want to make profit by ſheep. Shelter is neceſſary to that animal, as much in ſummer as in winter. I have often ſeen, during a hot ſummer, a flock of ſheep panting for breath, and yet labouring for food all the day long on a bare paſture, without ever finding time to take reſt. I have as often ſeen ſheep in a rich paſture lying half of the day with the belly full under the ſhade of trees. A corner of this incloſure was covered with whins. Were I the tenant, they ſhould remain there, as no food is more palatable to ſheep than the young growth of whins

in ſpring. They are fond alſo of the flower at all times. I was told that this fine improvement was the work of Mr Dundas of Duddingſton.

Every paſſenger of taſte muſt give praiſe to the *Earl* of *Roſeberry*, for the entertainment afforded by the fine cultivated fields on the ſide of the road from the Ferry to Edinburgh. It is impoſſible to conceive any thing finer, a variety of ground, high and low, covered with fine graſs, enriched with plantations placed advantageouſly in the fineſt taſte. The approach to the houſe is noble. His Lordſhip has given great pleaſure to the public by that delicious landſcape, and at the ſame time has ſtudied his own intereſt, by the great improvements he has made upon a ſpot formerly a ſort of deſert. Happy ought that man to be, who can thus connect his own intereſt with that of the public! His Lordſhip, at the ſame time, has given a good example to others, by ſhowing that oxen can be employed in huſbandry as commodiouſly as horſes, and with much leſs expence.

I unfortunately miſſed Mr *Murray* at *Dalmeny*, whoſe operations ſhow him to be an intelligent and active farmer. The houſe, offices, and ſtraw yard, are remarkably neat; the incloſures with ditch and hedge well executed, many of them faced with ſtone, to ſave the thorns from ſheep. His ſummer fallow was in great order; and I obſerved abundance of lime ſtored up, ready to be ſpread on the fallowed land. He is diligent alſo in gathering dung and making compoſt dunghills; and he has a peculiar incitement to do ſo, in order to conquer a ſoil partly ſtubborn and partly muiriſh. I could find no fault with any of his operations, but that of ſowing beans broad-caſt on ground not ſo clean as, I believe, Mr Murray wiſhed it to be. Drilled beans, beſide the opportunity of cleaning the ground, give always a larger increaſe.

Craigiehall is the ſeat of the Honourable *Charles Hope Weir*. It is not my province to deſcribe ſo poliſhed a place, whatever temptation I may lie under. It would require a better pen than mine to give an adequate idea of the lawn, plantations on both

both ſides of a beautiful river, an antique bridge of communication, retired walks on both ſides, of great length, under cover of ſtately trees, the grove, the grotto, magnificent temple, &c. &c. But it is my buſineſs to mention, that, in all my ſurveys, I have not ſeen weightier crops of wheat, barley, oats, peaſe, and beans, than prevail in every farm of his eſtate. Mr Hope keeps no more in his natural poſſeſſion than to furniſh hay and paſture for his own uſe; and indeed every ſpot teems with weighty crops of hay and rich paſture. However much delighted with this ſcene, I muſt take the liberty to cenſure even Mr Hope for one error, indeed the only one. His cows are all capital, chiefly ſhort horned. Every quey calf is brought up, and, by the richneſs of the paſture, they ariſe to a monſtrous ſize by the time they are two years old, which fits them only for ſlaughter, not for giving milk. There is a certain quantity of food that nature intends for every different animal for giving them the perfection of their kind. The bad effects of ſtarving every body knows; thoſe of over-feeding are not

not ſo much regarded, becauſe a fat beaſt is always well-looked; and yet it is certain, that a fat cow never abounds in milk, more than a fat horſe in labour. Mr Hope is now of that opinion, and his queys for breed will be put on a leaner paſture. He has got a mixed breed of the Iſle of Sky kind, a fine bull and two queys, which on his land will riſe conſiderably in ſize; and a croſs breed between that bull and his beſt cows will turn out to great perfection. His dairy is commodiouſly fitted up in a cool place, and kept extremely clean, the milk, cheeſe, and butter, all in perfection.

Examples of oeconomy have greater influence on the mind than the beſt precepts. There is not an idle ſpot in the extenſive young plantations, all occupied with potatoes, turnip, cabbage, and clover, which afford not only plenty of food for the cattle, but improve the trees, by keeping the ground open among them.

A hill a mile from the houſe to the weſt is all planted with thriving trees. A few years more will make it a beautiful object from every quarter, and of great value to the proprietor.

Mr

Mr Hope gives good houſes to his tenants, and delights in their proſperity. The rent of his farms runs from a guinea to 25 s. *per* acre. But it is the voice of the country that he could draw conſiderably more were he to ſet his farms by roup. Mr Hope is much more ſolicitous about the welfare of his tenants, than ever to think of parting with any of them for a ſmall advance of rent. He knows what his farms can yield by diligent cultivation, and he never demands more.

David Gray farms 200 acres from Mr Hog of Newliſton. I did not obſerve a ſingle ridge in bad order. The ſoil is excellent, and on an advantageous expoſure; and it ought to be ſo, when it enables him to pay a rent of 30 ſhillings *per* acre. He never employs but two horſes in a plough without a driver; and he is equally oeconomical in other articles, though he is not ſparing of money where it can be laid out to advantage. But what chiefly ſupports him under the weight of ſo great a rent, is his indefatigable induſtry.

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The eſtate of Mr *Johnſton* of *Straiton*, conſiſting of 800 arable acres, is a ſtrong heavy ſoil, with a till bottom, and many parts wet and ſpongy. The proprietor, at the time of life when the mind is the moſt open to pleaſure, reſiſted every temptation, and applied himſelf to agriculture with the ſame induſtry as if his living depended on it. In the ſhort ſpace of 15 years, he has gone through the improvement of the whole by ploughing, lime, and dung, and ſubſtantial ſtone fences fit for ſheep, every incloſure being directed by the lying of the ground, and nature of the ſoil. Many trees are planted in clumps and ſtrips, which, being carefully preſerved, begin now to make a figure.

As paſture was from the beginning this gentleman's chief view, he never kept a field longer in corn than to prepare it thoroughly for graſs-ſeeds; and after taking a crop or two of hay, he relieved himſelf of any further burden, by letting it for paſture, which he does advantageouſly, as there is a great demand for graſs in that part of the country. At the ſame time, he is careful about the graziers, to whom he

he lets his incloſures, chooſing always thoſe who have the reputation of underſtanding their buſineſs the beſt. By that means his grounds are never overſtocked, which is equally beneficial to the tenant and the landlord. The rent runs from 20 to 30 ſhillings *per* acre, all of it punctually paid.

Gentlemen who make extenſive incloſures pay ſeldom much regard to the poor tenants they diſlodge. Mr Johnſton deſerves high commendation for a contrary practice. He has built convenient houſes in different parts of his eſtate for lodging every induſtrious family that can gain their bread by their labour. Thus his eſtate is highly improved, and laid into graſs with very little depopulation.

At Bormiehill he has incloſed 350 acres of courſe rough ground, chiefly intended for ſheep. The incloſures contain ſome 15 acres, others 60. The rent was L. 55 Sterling, which is now raiſed to L. 200. This great improvement was the effect of lime, for he had acceſs to no other manure, and from 100 to 150 bolls of powdered lime are laid on an acre, where it lies a year. The firſt crop was oats, very indifferent; then fallowed,

years ſucceſſively, three ploughings every year. Thus the land is prepared for oats and graſs-ſeeds, ryegraſs on the heights, and the more tender graſſes lower. The preſent rent ſhows that the graſs-ſeeds proſpered.

I am ſenſible that it is bold to cenſure ſo eminent an improver; and yet I think I have reaſon for it. Lime ſpread on a hill unequal in its ſurface, beſide being coarſe and rough, is certainly not right where it is to lie a year, expoſed to be waſhed down by floods of rain. The meanneſs of the firſt crop ſhows the truth of this obſervation. Would it not have been more proper to begin with ſmoothing the ſurface by the plough, and laying it as equal as poſſible. If, in the month of October, the ſward had been carefully laid flat with the graſſy ſide undermoſt, ſo as to keep out the air, it would have been ſufficiently rotted for ploughing the following year, and laying it into proper ridges for winter. A thorough fallow next ſummer, and the ſoil well pulveriſed for being intimately mixed with the lime, and well ridged up for another winter, the

crops both of corn and graſs would have been much better, beſide ſaving a whole year in the operation. Mr Johnſton, in contriving his plan, ſo as to let the lime lie on the ſurface a year, has probably been miſled by fanciful writers, who talk confidently of lime drawing nitre from the air. By frequent experience, it is now univerſally admitted, that the moſt advantageous way of uſing lime is to lay it on thoroughly powdered, upon ground perfectly well pulveriſed by frequent ploughing. The effect depends on the intimate mixture of the two.

It is obſervable, that agriculture gains on the mind, and that a man who once taſtes the ſweets of it, ſeldom thinks of giving it over. This obſervation is verified in Mr Johnſton. He has taken a long leaſe from a neighbour of 230 acres, and goes on rapidly. I ſaw a fallow field of 30 acres thoroughly well done, and no fewer than 20,000 cabbage plants in rows, with intervals of $3\frac{1}{2}$ feet.

John Brown, tenant in the eſtate of Ochiltree, and ſome others in this neighbour-

bourhood, are farmers beyond the ordinary rate; but it is impoſſible to take every one into the liſt. I muſt even forbear mentioning the Earl of Roſeberry as a farmer, though he has greatly raiſed the rent of the eſtate which was poſſeſſed by him; a proof not at all ambiguous of his ſkill.

Sir *Robert Dalyel* of *Binns* has, by an unwearied exertion for a number of years, made great improvements on his eſtate, which is now in the hands of ſubſtantial tenants at a high rent. But I muſt not deſcend to particulars, which do not excell ſeveral above mentioned, only that he has made ſubſtantial ſtone fences, fit for confining even the wildeſt ſheep.

The eſtate of *Kinneil*, belonging to the Duke of Hamilton, is generally of a good ſoil, and capable by proper culture to carry crops of every kind. The incloſures are well conducted, thoſe eſpecially that are lately executed by the guardians of the late and preſent Duke. Theſe guardians ventured farther than guardians commonly do, which is to make extenſive plantations,

tions, eſpecially on high grounds; a work beneficial to the public, and ſtill more to the proprietor, as theſe plantations are near the ſea, and will give a great price when grown up, not to mention the weedings in the mean time. Dr Roebuck has a long leaſe of the coal and ſalt, for which he pays a high rent, and manages the ſame to the higheſt perfection. But my buſineſs is to conſider him in quality of a farmer. He has an advantage that few other farmers poſſeſs, which is an eminent ſkill in chymiſtry, and in every art that relates to agriculture; and he has employed that art in improving a farm he has from the Duke to a very great height. In a word, there is perhaps not a better farmer in Great Britain. Very few, I am certain, equal him in the principles of his art.

Sir *William Cunningham*, Baronet, has, on his eſtate of *Livingſton*, accompliſhed a great work, that has beautified the fields, and raiſed his rent without oppreſſing his tenants. His firſt operation was a farm of 500 acres, in the centre of which he reared ā neat farm-houſe, with offices of every

ry kind for the uſe of a farm, not excepting a commodious granary for corn. He proceeded to incloſe this farm with ditch and hedge in the moſt expert manner. The hedges are thriving wonderfully. I venture to ſay that they are excelled by none, and equalled by few. There is water in plenty in every incloſure, and trees planted in every corner, which give both ornament and ſhelter. Many thouſands, beſides, are planted in ſtrips along the higher parts.

It is for a gentleman of fortune to overcome difficulties. The ſoil of this farm is muiriſh, and inclining to clay on a till bottom, which makes it hold too much water. Turnip, cabbage, potatoes, were tried, but without ſucceſs. Levelling and ſtraighting the ridges were alſo attempted, much lime and dung given, eſpecially on the bare crowns of the old ridges, but without returns equal to the labour. Sir William, however, was not diſheartened. He turned his thoughts to lay all into graſs for a ſheep-farm. He ventured no further than to lower a little the old ridges, and to keep the furrows perfectly clear. Lime was uſed from 60 to 100 bolls *per* acre, according

ding to the nature of the ſoil, and dung on the meaner ſoils. The lime is laid on fallow before the laſt furrow. Upon the beſt grounds, where lime only is given, care is taken to mix it intimately with the ſoil by ſeveral ploughings. On the beſt ſoils wheat is taken after fallow, and oats on the meaner ſoils. Graſs-ſeeds are ſometimes taken with theſe firſt crops, and ſometimes after two or three crops. But I cannot doubt that it will be better as an immediate ſucceſſor to the firſt crop of grain, than to the ſecond or third. Peaſe have here always been a luxuriant crop, which is a happy circumſtance in the improvement of a farm. Peaſe, indeed, commonly ſucceed in new ſoil well limed. Sir William well knew, that it would be a vain attempt to engage in ſo extenſive a plan of improvement, where the ſubject was naturally poor, and made worſe by bad management, without the aſſiſtance of a ſkilful operator. He fortunately fell upon Gideon Pitlock, a Northumbrian, a ſober and intelligent man, and by him all the improvements were conducted. Sir William,

William, anxious to fix in this country ſo capital an improver, gave him a long leaſe of this farm of 500 acres for about nine ſhillings *per* acre. No deſpicable improvement, conſidering the former poor ſtate of that farm. And, to engage Pitlock in this leaſe, Sir William became bound to furniſh him *gratis* at the kiln, no fewer than 12,000 bolls of lime.

Mr Pitlock never uſes more than two horſes in a plough, without a driver. He intends now to labour with oxen only, to which he was accuſtomed in Northumberland, copied from the neighbouring county of Berwickſhire.

His ſheep are a choſen kind from Northumberland, large and well made, with ſhort legs. The fleece weighs 7 pounds. They are always ſalved. In the neighbourhood, I obſerved incloſures wearing a clean face, a few of them highly cultivated, and bearing rich crops. Theſe I was told belonged to Mr William Wilſon of Howden, writer to the ſignet, who has long practiſed huſbandry with judgment and ſucceſs, particularly that of horſe-hoeing. To enter into particulars, would be but

but a repetition of what I have mentioned more than once with reſpect to the beſt cultivators.

Linlithgow is a populous town, and yet was abſolutely aſleep as to huſbandry improvements, till lately. Provoſt Andrew, a man of induſtry and underſtanding, carries on the malt and brewing articles with great ſucceſs. His ſtrong ale and ſmall beer are both of them in requeſt, which makes a briſk demand for barley, and begins to promote huſbandry. But he does not confine his induſtry to theſe two articles. He farms the large park of Linlithgow, a lively ſharp ſoil on a rocky bottom, which is a drain that carries off the ſuperfluous moiſture. This has directed him to the drill huſbandry for turnip, cabbage, carrot, parſnip, all in perfection when I ſurveyed the farm. After the drilled crops barley is ſown; but, where the ground is not thoroughly clean, another drilled crop is taken. Oats with graſs-ſeeds follow the barley; and, after taking a crop of hay, the field is ſurrendered to paſture three or four

four years. Every crop I ſaw was extraordinary.

The provoſt has acceſs to ſhell-marl out of the loch, which is charged to him at 6 d. a boll, a high price, conſidering that the marl is not pure, being mixed with a proportion of moſs. The provoſt, for that reaſon, reckons it beſt for a ſuperficial dreſſing; but, if laid on in a ſufficient quantity, I can have no doubt of its being a prolific manure; for ſurely it cannot be the worſe of the moſs, except by adding to the charge of carriage. Experience has proved, that, when put upon a fallowed field along with dung, the crop is luxuriant. In Strathmore, the beſt crops of turnip I have ſeen are raiſed by ſhell marl *. In the provoſt's farm it does not anſwer well for turnip, unleſs dung be added.

At the commencement of the leaſe, the provoſt erected an outſide fence of ſtone; and he has ſince ſubdivided the farm with ſtone dikes in rocky ground, and ditch and hedge where thorns would grow. Wonderful induſtry upon a leaſe of no longer endurance than 19 years! I take it for

* See vol. 1. p. 298.

granted, that he will not find many imitators.

Among other articles, he enters briſkly into the flax huſbandry. He chooſes a loamy ſoil that has been thoroughly fallowed, dunged, and marled, at the rate of 40 bolls *per* acre; and, after a ſingle crop of barley, flax is taken, which never miſgives. It is, beſides, in general extremely fine. Yarn ſpun of it was made into cloth in a reed of 25 hundred warp, worth 8 s. the yard. A noted flax heckler from Flanders declared he never ſaw finer. The cloth gave great content at the Linen-hall, Edinburgh. This was all owing to a worthy old gentlewoman, the provoſt's mother.

At the farms of *Bonnington* and *Magdalanes*, we meet again the operations of Mr George Henderſon, the moſt extenſive farmer in this country. The many farms he has undertaken and brought into order, at a diſtance from one another, have ſpread induſtry and knowledge of farming among many, though leſs profitable to himſelf. His plan is excellent for a great undertaker;

ker; after incloſing, dreſſing, and ſowing graſs-ſeeds with expedition, he immediately ſubſets, and is ready for a new farm. But the moſt noted inſtance of his ſkill and activity, is the Burrow-muir of Linlithgow, conſiſting of 80 acres, let commonly from L. 3 to L. 5 Sterling the whole; a ſufficient indication of the poverty of the land, carrying nothing but heath and dwarf whins, and not a little ſtony. This muir Mr Henderſon undertook upon a long leaſe, much to the advantage of the town, as, at the expiry of the leaſe, it will probably raiſe the rent from L. 5 to L. 50, perhaps more. He laid out liberally upon incloſing, ſubdividing, ploughing, marling, beſide clearing the whole of ſtones. His firſt crop was turnip, which indeed were not good by want of dung; but the following crops of oats and graſs from ſeed ſown with the oats, were extraordinary, conſidering the ſoil.

My attention was next directed to *Kingsfield*, originally little better than the Burrow-muir. Mr Taylor, the town-clerk, caught

caught the flame from Mr Henderſon, and ſet out vigorouſly on the improvement of this farm. He laid out his money freely, and he was rewarded with ſucceſs. Affection for what he conſiders as his own child, engaged him to purchaſe it; and now that his child is arrived at maturity, he has no reaſon to be aſhamed of it. It is fortunate for this quarter that there is a riſing emulation among the farmers. All are alive here, ſtruggling to excel.

Carriden is an eſtate lying beautifully along the ſhore of the Forth. The fame of the Park of Carriden is ſpread far and wide, out of which great profits were made by a noted grazier of that time, extremely ſkilful in that art. But at that time old graſs fields, well incloſed, were extremely rare. The late Dr Maxwell purchaſed that eſtate ſome years ago, and made good uſe of his time; for in ſix years he incloſed the whole with hedges where the ground was good, otherwiſe with ſtone fences. He dreſſed well what was in his own poſſeſſion, carried off the water by drains, and produced good crops both of corn and graſs. The ma-

nagers

nagers for the children are about letting it to tenants. Here I met with George Smith, engaged with a farm lately taken by him. I have not ſeen a field more properly dreſſed than one here in the courſe of fallowing, much lime and compoſt ready to be laid on. But as the field, when I ſaw it in the beginning of harveſt, was lying flat, and not yet ridged up, I could not avoid being in ſome pain about it, as a rainy day or two would ſuſpend the whole operation, and neither allow the ridges to be formed, nor the manure to be ſpread. One miſtake in farming, into which the moſt enterpriſing farmer is the apteſt to fall, is the undertaking too much at a time. It is extremely dangerous to ſuffer fallowed land to lie flat late in the year, when the ſeaſon commonly is rainy.

I remember well to have ſeen the whole grounds from Cramond-bridge to Corſtorphin a bleak muir. It is now highly cultivated, and in the courſe of bearing fine crops, both green and white, one field excepted, about ten acres, lying in its original ſtate, and bearing nothing but whins. The hiſtory of this field I am unacquaint-

ed

ed with; but ſurely it argues double neglect in the midſt of ſo much activity. I remarked, in particular, the ridges in this tract, all of them ſtraighted and raiſed to a proper height, eſpecially Mr Jamieſon's farm, every one of whoſe operations are carried on in the beſt manner *.

LANARKSHIRE.

THIS county is made up of hill and dale, with ſeveral high mountains. The ſtore farmers follow implicitly the ſteps of their forefathers, without having a notion of better. It is in vain to expect improvement from them, unleſs ſome public ſpirited gentleman would take the lead and engage, firſt one and then another, to follow his example. I cannot celebrate

* Particulars of this farm is in the eight ſurvey.

lebrate this county for many good corn farmers, conſidering its extent. Some, however, there are to be found, eſpecially in that part of the county termed Clydeſdale.

I entered into that diviſion of the county called the *Upper ward*, at Garval-foot. Mr Douglas, the late proprietor, incloſed and planted much here. The incloſures were made ſmall for ſhelter, in imitation of what are ſeen in England. It was not adverted to, that the trees growing up overſhadow the ground, and prevent a free circulation of air, which at preſent is the caſe here. Even the graſs fields ſuffer, and ſtill more thoſe in corn. Colonel Douglas, well known in the military line, and brother to the gentleman mentioned, has a leaſe of this place. In his management as an improver, he ſhows ſkill and dexterity rarely to be met with. The activity neceſſary in the officers of the army, makes them generally ſucceſsful when they apply to huſbandry. The incloſures are kept in fine order, the tillage good, and great induſtry

induſtry is exerted to collect into a dunghill every thing that will ferment and putrify. The Colonel is from home; and it is now the time of hay-making, which requires care and deſpatch. Whom did I find attending the hay-makers, and directing that important work? the amiable Mrs Douglaſs, although a more ſultry day I never felt. A pleaſing and notable inſtance of female attention to family intereſt, deſerves the higheſt praiſe, and to be imitated.

I could employ with pleaſure many pages in praiſe of Mr *Broadfoot* miniſter of Dunſyre. In his profeſſion as a miniſter, he is exemplary, both by practice and precept. As a farmer, no ground is better managed than what he poſſeſſes. He raiſes turnip, cabbage, and potatoes, a mode of huſbandry little known here. He has a liberal mind, and, loving to do good, is always happy to inform the ignorant. But what I value him for moſt is, that he will prove a bleſſing to this part of the country. His pariſhioners and neighbours are all fond of him; and his great influence over them will undoubtedly lead them to follow

follow his exampie. Several of the tenants have fairly begun to raiſe green crops, and his and their examples are ſpreading daily. In ſhort, I can entertain no doubt but that, in a few years, huſbandry will be conſiderably advanced all around him, where formerly it was ſcarce alive.

It was very grating to me to obſerve on both ſides the river Medwin much land drowned in water on every fall of rain, and conſequently of very little uſe. The expence of ſtraighting and widening the bed of the river, would be nothing, compared with the value of the land that would be gained by it. How beneficial would this be in a country, the product of which at preſent is not ſufficient for the inhabitants!

The tenantry, poor and mean, have no ſpirit for improvement; and no wonder, conſidering the ſhortneſs of the leaſes that are given. They labour every year as if it were to be the laſt of their poſſeſſion. Are the proprietors aſleep? One would think ſo, when ſo regardleſs of their own intereſt.

Newham, on the banks of Medwin water, Mr *Gray* proprietor, a young gentleman, who attends his profeſſion as a writer to the ſignet at Edinburgh; on that account, he dips not deep into the improvement of his eſtate, although it is a very proper ſubject for receiving conſiderable improvement. The valley is narrow, and the arable ground good. It will yield to the culture of the plough, whether for corn or graſs. The crops of both now upon it is good evidence of my obſervation, and afford a flattering invitation to our proprietor for beginning a regular plan of good huſbandry, which ſhould be extended in general over all the arable ground.

We do not regret Mr Gray's abſence reſpecting the fields immediately connected with the houſe, theſe being very properly managed and improved by Mrs Gray his mother, a lady of great prudence and ſagacity. Her mode of conducting the dairy is notable and examplary; the butter and cheeſe ſhow it by the excellent quality of both. The cows are well choſen, and their ſize calculated for the country; they are in fine order. Examplary, indeed,

deed, for the country in general, is the oeconomy at Newham, which alſo is extended to the rearing of a very proper kind of horſes, fit for the labour of the farm.

A green hill oppoſite to Newham, a part of the eſtate, is a fine ſheep walk; but it is only a ſummer paſture, for the ſheep eat the graſs cloſe, the quality of it being fine; hence no food is left for wintering. This hill ſhould be always ſparingly ſtocked, that the paſturing ſheep and lambs may fatten on it, to inſure a ready ſale for them; becauſe, if not ſold, ſuch a flock as are kept on the hill, if perchance they are thrown in upon other paſture for winter, among the ſheep of that paſture, ſurely a conſiderable loſs would ariſe by an overſtock. But this hint, I think, may be unneceſſary, where the management is conducted with ſo much prudence and forethought. I rather intend it for others leſs conſiderate or attentive.

I was delighted with *George Ferguſſon*, tenant at Roberton-mains; he entertains high ideas of modern improvement in huſbandry.

bandry. He wrings his hands, and regrets, in moving language, that he cannot in prudence go into the culture of turnip, nor of an extenſive plan of ſown graſs, becauſe all would be eat up by his neighbours flocks of ſheep and herds of cattle, while the law obliging winter herding is allowed to lie dormant, and not enforced by the gentlemen; for it is them only who dare put the law in execution, until the practice be eſtabliſhed. Quicks he would plant, and rear them to be a fence even upon the leaſe he has of 19 years only, but for the ſame dread from unherded flocks deſtroying them totally in winter. I pity this worthy farmer, who is exceeding anxious to modernize his farm, improve his flocks, make the moſt of it he can by induſtrious improvement, and have the honour of leading a good example for his brethren to follow, in an uncultivated part of the country, if he could venture upon it with any tolerable degree of ſecurity againſt the danger juſt now ſtated. I mentioned to him incloſing with ſtone-walls; but the leaſe is too ſhort for ſo heavy an expence; but willingly would

would he pay five *per cent. per annum* for the money laid out in fencing with a ſubſtantial wall of ſtone, if his landlord would do it. This ſurely is his intereſt; and I know many gentlemen who would be happy to have ſuch a tenant as Mr Fergusſon is, and doubly happy to indulge him by incloſing the farm on the conditions juſt mentioned.

I cannot paſs by the glebe of the Rev. Mr *Fergusſon*, miniſter at Dolphington, and not remark the improved face he has put upon it, although but three years ſince he began. It is truly ſuperior to any around. It is incloſed by ditch and hedge upon the beſt plan; the quicks are protected by a ſtrong pailing, while an immediate fence is obtained. Much ſuperfluous water was lodged in parts of the ground, which is now drawn off by under drains, which are covered and well directed, into the open drains at the loweſt parts. His compoſt dunghill of earth, lime, rubbiſh of old houſes, and ſcourings of ditches; theſe turned over frequently by the plough, mix intimately, raiſe a ſtrong fermentation, and make every latent

tent ſeed vegetate, or roots of weeds rot, ſo as the manure may be pure before it is applied to the ground, with which our improver intends to raiſe turnip. I love to record examples from the clergy, becauſe a good clergyman has great influence with the people, and they are inclined to copy from his example improvements in huſbandry as well as in morals; and I am aſſured they cannot imitate a better man than Mr Ferguſon.

Like many other high parts of Scotland, peat is the only feuel for fire. That few or no plantations of firs are raiſed, is truly a reproach to the gentlemen whoſe property the lands are. How beneficial would ſuch be to the flocks, in a ſevere winter, for food and ſhelter, to the poor people for firing, and to themſelves or families at laſt? Yet few of them think of raiſing plantations of firs and other trees, that would be uſeful in the country, on many barren muirs or hills that preſently yield them nothing.

Captain Bertram of *Kerſewall*, notwithſtanding his avocations as a military officer, promotes his own intereſt and that of the country,

country, not only by large plantations, but by examples of better huſbandry than is practiſed in that part of the country. The incloſures near the houſe are ſmall, and the ſtrips of planting narrow. But this was his firſt eſſay. Experience has taught him a better mode. His later incloſures are large, and his ſtrips of planting wider. In the higher parts, his only fence is earth dikes, a very caduciary fence, and ſubject to the inroads of cattle. I was informed that quicks did not thrive in that ground, and that ſtone could not be got.

The ſoil, for the moſt part, is proper for turnip; and yet a field covered with ſo uſeful a plant is a rare ſight in this quarter. Mr Bertram is doing all in his power to introduce the turnip huſbandry. A field of turnip I ſaw at Kerſewall was in rows three feet aſunder, and dreſſed in perfection. It is to be hoped his example and influence will be ſucceſsful, firſt among his own tenants, and then among others.

Lime-ſhells at ten pence *per* boll are carried here by the tenants with ſtout horſes in very ſmall carts. It were to be wiſhed that the adjuſting the quantity to the draught

draught were better underſtood, though at preſent that branch of knowledge is of very little importance, as the tenants do nothing elſe in the ſummer time. How much more profitably would they be employed on a fallow field, or on horſe-hoed turnip, and leading lime to themſelves? But it is extremely difficult to root out old cuſtoms, even in oppoſition to common ſenſe and obvious intereſt.

I proceeded by *Carnwath*. The road led me over a poor muir; nothing doing for the improvement of it, not even a tree planted. How agreeable is it to the traveller, when he meets a village in the middle of a muir? This is the ſituation of Carnwath; and from appearances of houſes but lately built, particularly one for an inn, the public have General Lockhart to thank for accommodating them with ſo good a houſe, and placing in it a qualified maſter and miſtreſs for the buſineſs of keeping a proper inn on a public road.

We will not boaſt of any improvement made on the lands around the town, except thoſe of Mr Smith's, whom the honourable

nourable truſtees for manufactures have appointed to improve the method for raiſing and dreſſing flax. He ſucceeds in that branch, and has made ſeveral attempts to improve huſbandry in general in this forlorn part of the county, and with ſome degree of ſucceſs.

I proceeded toward Tintock-hill, in my way to Mr *Douglas* of *Douglas's*; but neither ſaw nor heard of any improvements, till I happened to ſee a parcel of cows and young ſteers of a good kind, and in fine order, paſturing deliciouſly on ſown graſs, a refreſhing view after ſuch an interval; the ſurrounding fields carrying good crops of grain; and a farm-houſe on a better plan than any in the neighbourhood. I wiſhed to converſe with the farmer, who might well be held a phoenix in this barbarous country. It was the operation of Lord Braxfield, who unfortunately for me was from home; and it rained ſo much at the time, as to be very inconvenient for viewing improvements. Lord Braxfield formed an early plan for improving the eſtate of Hardington, which

was in very bad order at the time of his purchaſe. The river Clyde, which borders it on one ſide, made great depredations, and deſtroyed much good land. The great quantity of ſtones taken off the land has been uſefully employed, not only to fence the banks ſecurely, but to mend the high roads.

The ſoil is variable, generally of that free and eaſy quality which turnips delight in, and which is favourable to thorn hedges; a comfortable ſoil for an improver. The ſituation of that eſtate, lying ſouth of the great hill of Tinto, ſubjects it to much rain, but leſs noxious than if the ſoil were clay.

Some feeble attempts were made 30 years ago to warm the ſoil by ſtrips of planting. The fences have gone to ruin, but the trees remain in a flouriſhing ſtate, which ſhows the aptitude of that ſoil and climate for trees. The ſtrips being too narrow, his Lordſhip has added 30 feet on each ſide, filled with choice trees, which receive great ſhelter from the grown up trees in the middle. In order to quicken the pace of his thorns to make an early

fence,

fence, they are all ſet in earth previouſly prepared by a ſummer fallow.

Every height incapable of tillage is planted, and the muiriſh parts improved by lime and labour for graſs-ſeeds;—a fine preparation for a flock of ſheep, the trees for ſhelter, and the graſs for food. Turnip upon the good ſoil are raiſed by horſe-hoeing. Hitherto the intervals have been five feet, to give the greater ſpace for clearing the ground of weeds. When the ground is perfectly clean, the diſtance between the rows will be contracted. Lord Braxfield may well be conſidered as an Apoſtle to the Gentiles for teaching the ſalutary doctrine of agriculture; and the more is incumbent upon him, as he is the only gentleman improver in that diſtrict. His example muſt make an impreſſion even on a ſtubborn infidel. But his chearfulneſs and ſocial diſpoſition muſt have ſtill a greater influence.

Thoſe who love to ſee their country flouriſh, will be pleaſed to hear of what is doing by Mr *Douglas* of *Douglas* for improving his extenſive eſtate in Clydeſdale; the improvement at preſent but ſmall indeed,

indeed, like a muſtard ſeed; and who knows whether it may not in time become greater than the muſtard ſeed; for, in place of one great tree, many thouſands, perhaps, may ariſe, as great attention has been given for eight years paſt to incloſe in the moſt ſubſtantial manner with ditch and hedge, the ditch three feet deep, and ſix feet wide at the top. And there is great encouragement for this operation; for thorns thrive well here, provided they be kept clean from weeds. A hill of 100 acres is completely planted with barren trees, and about 250 acres more on lower ground, all thriving, and promiſing a rich return to this noble family in due time.

Lime, which is got in plenty, and of good quality, is the great reſource for manure in this high country and cold ſoil. He lays out the firſt coſt in quarrying and burning, furniſhes lime ſhells to every tenant at 8 d. *per* boll, barley meaſure, and to many of his weak tenants he furniſhes lime *gratis*. He gives pecuniary premiums for ſummer fallow, turnip, and graſsſeeds, proportioned to the quantity. Theſe premiums begin to operate. The tenants generally ſummer fallow, have turnip and

ſown

ſown graſs; and they will have more and more every year, after finding the ſweets of that ſort of culture.

But Mr Douglas's chief encouragement to his tenants is to give them a good example from what is carried on in his own farm. The ſoil of Douglaſdale, lying on both ſides of Douglas water, is a narrow, but pleaſant vale, and is generally light. The ground riſes gradually till at laſt it becomes a hill, and, as it aſcends, becomes heavier and wetter, yet capable of being made dry by proper draining. This accordingly has been done, partly by covered drains, partly by open drains, ſuch as are recommended in the Gentleman Farmer. The ſoil neareſt the river is rich loam, not apt to be hurt by water. This is a lucky circumſtance, becauſe it is covered with water when the rain overflows; and it is always benefited by it when it happens in winter, which is viſible from the next year's product, whether of corn or of graſs. Turnip, barley, and ſown graſs, are generally the product of the light land*.

Much of the higher ground has been run out by execrable management. To recover

* See page 56.

recover this ground proved a laborious taſk. The firſt ſtep was to clear the broad baulks between the ridges from great quantities of ſtones heaped up there. The baulks were torn up by the plough, and the whole was ſummer fallowed in ſpring as a preparation for turnip. Lime was added, about 100 bolls *per* acre, with all the dung that could be procured. The turnip was a good crop. Barley or bear followed, alſo good. But oats thrive better, and are often luxuriant; for which reaſon, they are avoided when graſs-ſeed is to be ſown, and barley or bear preferred, becauſe not ſo apt to lodge. Ryegraſs, ribwort, red, white, and yellow clover, are ſown for obtaining a good ſward at once. By this approved mode, land formerly let at 2 s. 6 d. *per* acre draws now from ſubſtantial tenants 10 s.

I cannot omit a trial made on five acres of moiſt ground in the hands of a tenant, by the perſuaſion of Mr Douglas the overſeer here. The pairing and burning afforded plenty of aſhes, which were ſpread with the addition of 60 bolls of lime to the acre. The turnip crop, though in broadcaſt, paid all expences; and the tenant

nant was tempted, by an offer of 45 s. the acre, to let it to a neighbour three years for corn. This was a great riſe upon ground that formerly did not pay more than half a crown *per* acre; though I cannot approve of permitting it to be reduced to its former ſtate by three ſcourging crops of corn. Such a return, however, is animating, and probably will incite others to attempt new improvements, without fooliſhly throwing them away after they are made.

Great attention is given by Mr Douglas to his horned cattle. He has got a bull and a cow of the Holderneſs kind; and reaſonably expects, that a croſs breed between the bull and the beſt country cows will produce excellent cattle for milk, for labour, and for the butcher. This is a capital article of improvement in a diſtrict much better fitted for graſs than for corn.

I muſt not omit the practice of two or three farmers, who follow faſt at the heels of Mr Douglas their landlord. Mr *Thomas Forreſt*, factor on the eſtate, deſerves the firſt place. He deals much in potatoes

toes and turnip. From his beſt kind of ſoil he has got 12 bolls of oats *per* acre, and eight of barley or bear. Peaſe is a very precarious crop; yet, in a favourable ſeaſon, the increaſe is good. Beans grow too luxuriant for this wet climate, which makes it difficult to ſave them †. Vetches ripen not; but, cut green, they anſwer for ſummer food. Neither Poliſh oats, nor the large white Engliſh kind, are to be compared with Blainſlie oats, with reſpect to the product. French barley did not anſwer expectation. The general return of oats is from 4½ to 6 bolls after one boll of ſeed. Spring wheat anſwers here as well as what is ſown in autumn; but the wetneſs of the ſpring and autumn is unfriendly to this grain.

I proceed to Mr Forreſt's incloſures. He has incloſed his farm, conſiſting of 200 acres, with ditch and hedge; and ſo friendly is the ſoil and climate to thorns, that ſeveral of his incloſures have become fencible in ſix years. His incloſures run from ſix to twelve acres, and his ditches are carried through the weteſt ſpots, in order

† See vol. 2. p. 5.

order to carry off the water. He is fond of hedge-rows, which indeed greatly enliven the proſpect. I will, however, take the liberty to ſuggeſt ſome objections. Firſt, the incloſures are too ſmall. When the hedge-row trees arrive at their height, they will ſtop the circulation of air, and hurt both the corn and the graſs. Second, a ditch in wet ground is unfriendly to the growth of thorns. And, laſtly, ſuch ſmall incloſures, beſide other inconveniencies, are too expenſive, eſpecially for a tenant. Mr Forreſt has experienced the loſs of levelling and ſtraighting high crooked ridges, which is difficult at any rate, and not to be attempted but very ſlowly in a moiſt climate. He has accordingly reſolved to drop that practice.

I cannot conclude this ſketch of Mr Forreſt's huſbandry without teſtifying my approbation of his ſpirit for improvement. By a lively exertion of that ſpirit, he gains knowledge daily, and ſmooths the path for others to walk in ſafely and profitably. Ought not this man to be revered as a public good?

Mr Douglas has given ſufficient encouragement to *Andrew Freter*, a tenant from Northumberland, to take a leaſe of a farm called *Woolfcrooks*. Two years only have elapſed ſince his entry. He ſet out with ten acres in turnip, took barley with graſs-ſeeds, and all the crops were good. Some fields he has incloſed with double ditch and hedge, an expenſive method, but neceſſary in a country ſcarce of wood for pailing. He has planted many trees, for ſhelter as well as for profit, no fewer than 16,000 this very year. He has ſtudied alſo ornament, having planned a broad ſerpentine belt ſurrounding his whole farm, incloſed on one ſide with a ſtone wall, on the other with ditch and hedge, protected by a pailing of timber on the top of the ditch. This ſpirited farmer has eight acres under turnip this year; and laſt ſpring he ſowed with graſs-ſeeds no fewer than 20 acres. If ſuch improvements do not rouſe his neighbours to ſome degree of activity for their own intereſt, their ſleep muſt be very ſound.

Mr

Mr *Gordon* of *Harperfield*, near Lanerk, reckoned one of the chief improvers in this country, deſerves to be mentioned with applauſe. His farm, conſiſting of 218 Engliſh acres, is bounded on two ſides by the river Clyde and Douglas water, on the weſt by an extenſive muir, rough and wild. What ſurpriſed me the moſt was his hedges, ſome of them planted on the pooreſt land. But great attention was given to bed them with the beſt ſoil that could be ſcraped together. He trains his hedges in the manner recommended in the Gentleman Farmer. No perſon who has not ſeen them will imagine it poſſible that hedges in ſo poor a ſoil could make ſuch a progreſs. His beſt land, when dreſſed and limed, produces white clover in abundance, which, with artificial graſſes, make fine paſture and fat cattle. The latter, indeed, is in ſome meaſure owing to great care never to overſtock the ground. Many plantations of trees are here reared, chiefly in clumps, as more ornamental than belts, and admitting a free circulation of air. Larix and ſpruce fir make every where

a vigorous progreſs, and ſhelter the ſlower growing trees.

I muſt not omit the culture beſtowed on a wretched piece of muir, part of that deſcribed above; bad by nature, and made ſtill worſe by flaying it for coverings to houſes. The particulars follow. In the month of June it was ploughed, and the fallow were turned over to lie flat, in order to rot it. Next year, at the ſame time, it was croſs ploughed, and the ſtones gathered for under drains. The ſurface was, by application of the break harrow, made ſmooth and fit for the reception of lime, of which 80 bolls powdered, barley meaſure, were laid on each acre. The third year, in May, it was twice ploughed, and break harrowed and ridged up in ſtraight lines. In July the ſame year, it got one boll ryegraſs, eight pounds red clover, and four pounds rib-graſs on the acre. In many parts, the fourth year, it might have been cut for hay; but it was ſpared, and paſtured lightly with ſheep and black cattle. As ſome feather-graſs ſeed were ſown with the reſt, it got above them. The red clover did not thrive; nor was the land pro-

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per for it. As this part of the country contains much of this ſort of ground, as well as many other parts of Scotland, it may be inſtructive to ſtate the expence laid out by Mr Gordon upon this piece of ground, conſiſting of 28 Scotch acres.

Lime at 10 d. *per* boll, carriage and ſpreading included	L. 93	6	8
Cutting drains and filling with ſtones . .	30	0	0
28 acres incloſed with ditch and hedge, divided into four croſſes, parling on the top	18	14	0
Graſs-ſeed . . .	16	10	0
Sowing and rolling .	2	10	0
Amount	L. 161	0	8

which divided by 28, brings out the expence of each acre to be L. 5 : 15 : 0. Mr Gordon reckons this field to be now worth 8 ſhillings *per* acre, which is a handſome return for his money.

He employs two horſes only in the plough. Mr Gordon has every huſbandry inſtrument recommended in the Gentleman

tleman Farmer, and highly approves of them all.

I looked into the dairy, which is kept neat and clean, and turns tolerably well out. The eight ſmall cows he keeps have plenty of food in the ſummer months, and a rough foggage in winter, which is Mr Gordon's great care. They are always in good order, though oat ſtraw is their only dry food, excepting a ſmall allowance of hay to cows at calving. I muſt ſtop here a moment to cenſure our improver for neglecting turnip and cabbage, excellent green food, particularly in ſpring, to cows that calve early. The cows are ſmall, not exceeding, at an average, 24 ſtone *per* carcaſe in the ſhambles. The product of each cow in butter and cheeſe amounts to L. 4. Butter ſells for 10 s. *per* ſtone, 20 Dutch pounds to the ſtone, and ſkimmed milk cheeſe for 4 s.

A lime-ſtone rock runs through much of this country; and Mr Gordon is led by experience to think, that lime has no conſiderable effect on land in which there is lime-ſtone. Nor is he ſingular in that opinion *. It is alſo his opinion, that lime operates

* See vol. 2. p. 249.

operates more powerfully on a vegetable ſoil, than upon any natural ſoil whatever.

Mr *Lockhart* of *Cleghorn* hitherto has been chiefly occupied in rearing plantations, ſcattered through 500 acres of land in variety of figures, clumps of different ſhapes, belts, and thickets. Happy it is for a gentleman of an eſtate, when his taſte coincides with the public intereſt; for theſe plantations will in time prove a ſubſtantial benefit to all within reach of him. Nor can it fail to pleaſe every one to ſee plantations riſing every where in Scotland, formerly ſo bare. He has formed a very fine garden, and laid down a few fields with graſs-ſeeds round his houſe, which ſeems to promiſe that he will not reſt there, but proceed in his agriculture improvements. One curioſity I ſaw, deſerving well to be remarked, was a mighty crop of hay on a few acres of ground that had borne a crop of hay conſtantly 22 years paſt, without dung or any manure laid on it all that time. It is true that the foggage was kept from cattle, and allowed to rot on the ground, which finely ſhel-

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tered the roots of the plants againſt froſt. But, in my opinion, this practice cannot altogether be depended on for ſo many ſucceſſive crops of hay, without another precaution, which is to cut the graſs early, as ſoon as the ſeed begins to form, and never to permit it to ripen. In this way, even wheat may be kept growing for three or four years; and there are many graſs plants that wear out in a few years, when allowed to bear ſeed, which, when cut down regularly every year before that time, will continue to grow thrice as long.

No perſon who is acquainted with Sir *James Stewart* of *Coltneſs*, but muſt admire his genius and zeal to promote agriculture. His farm extends to 300 acres, moſtly a clay ſoil with a till bottom, difficult to be managed, eſpecially in a wet climate. This moved Sir James to form his plan for graſs, as the true way to turn his farm to the beſt advantage. A till bottom and a rainy climate, hurtful to corn, are rather beneficial to graſs. Upon this ſoil Sir James attempted to raiſe turnip and cabbage; nor could any field be better dreſſed

dreſſed for that purpoſe; but, as he had many difficulties to ſtruggle with, he relinquiſhed that method, and took entirely to the graſs plan. He begins with a thorough ſummer fallow with lime and dung, the rotation is wheat, peaſe, or beans, oats or barley with graſs-ſeeds. Red clover is avoided, as improper for a wet and cold ſoil.

Compoſt dunghills are made of earth, lime, and moſs, and applied to the meaneſt ſoil to thicken it. The land is fallowed, and wheat under furrow is the firſt crop. Rolling is never neglected in ſpring, and at the ſame time the graſs-ſeed is alſo ſown. It is a very judicious practice in Sir James never to allow his fields to be paſtured during winter.

Sir James has cows in great perfection, of the mixed Holderneſs kind. None of them give leſs than ten pints daily, ſome 15; and yet they are ſo full of fleſh, many of them, as even to be fit for the butcher *. His ſheep are of the country kind, purchaſed when riſing three years old; and by the time they are kept a year, they improve conſiderably in weight, fat, and

* See above, p. 364.

wool. Theſe particulars ſhow evidently the goodneſs of the old paſture here.

Here is a piece of moſs, covering a ſtiff bluiſh clay. Kail was planted on both ſeparately, but did not grow. A quantity of the clay was dried and pounded, and mixed with an equal quantity of the moſs, alſo dried and pounded. Kail grew on this compoſt moſt vigorouſly. Hence a leſſon for improving this piece of moſs, which is to leave ſix inches of the moſs to be mixed intimately with as much of the clay, by frequent ploughing and harrowing. But it is no new thing for two different ſtrata equally ſterile becoming fruitful by mixture. This is the caſe of lime mixed with poor effete earth.

I am now among a number of gentlemen improvers; as their mode of improving is in general the ſame, namely, by lime and planting, I ſhall but mention a few leaders. Mr *Hamilton* of *Wiſhaw* makes a fine figure. What of his improved fields that came under my eye, appear to be well done, the ridges altered and ſtraighted; although the ſoil be clay, the oats

and

and peaſe are good crops. His hedges are in very good order. I only regret that the thorns have been planted on the brink of the ditch without any ſcarcement. Is it not to be feared, that hard froſt will moulder down the earth from the roots, and leave them bare.

The eſtate of *Cambuſnethan* is as highly improved as any in Lanarkſhire. The proprietor, Captain *Lockhart*, is at preſent chiefly occupied in reforming his houſe and poliſhing his gardens and pleaſure ground. The incloſing, however, is not neglected. His thorns are kept clean, grow well, and are protected by a pailing, where danger from cattle is the greateſt; and this may be conſidered as a pledge for future improvements.

This eſtate lies in a low warm country, near the river Clyde. The ſoil excels for turnip, barley, clover, &c. This country, as it riſes from the river backward, inclines to clay, of which the proper improvement is fallow, lime, and a crop of grain or two at moſt, with which ſow proper ſeeds for paſture graſs to ſheep. The proper graſ-

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ſes are white and yellow clover, ribwort, ryegraſs, feather-graſs, and others that are natives of the country.

This part of the country adjacent to Clyde has a ſoil well adapted to fruit trees. Orchards, accordingly, of apples and pears, abound here, the rent of which, as I am credibly informed, reaches L. 700 yearly. The city of Glaſgow is a ready market. I muſt obſerve by the bye, that apples no where in Scotland are in ſuch plenty as to be made into cyder. When demanded for food, they give a higher price than they do in cyder.

I viſited Doctor *M'Kinlay*'s farm of *Woodſide*, a muiriſh clay on a till bottom, which of all ſoils is the moſt difficult to be ſubdued. To uſe his own ludicrous image, a mouſe ſitting on its backſide might have reached the grain from the ſtanding corn; and yet lime and perſeverance have brought this land into pretty good order. His hedges are cloſe, free of gaps, and in a thriving ſtate; and the crops I ſaw growing were good. His mode of culture, with 100 bolls of lime, is fallow, and cropped with oats, or barley with graſs-ſeeds. The red

red clover is good beyond all expectation. I have given this inſtance of improvement on a ſoil the moſt miſerable, to ſhow the mighty power of lime and a little dung, accompanied with a proper tillage.

Gentlemen of eſtates, however induſtrious, will never, by their own farming, be able to extend their improvements far. To improve an eſtate of any extent, the tenants muſt be taken into the plan, and encouraged by long leaſes to follow the improvements of their landlord. And I add, that the rent muſt be moderate, in order to have a choice of men that have an inclination to improve, and money to defray the expence. The land in this neighbourhood may verify this obſervation. Till lately it was in wretched order. Much of it begins to have a better appearance by the induſtry of well choſen tenants, though none of them have a leaſe of above 19 years. John Smellie and John Muirhead in Flemington have, in two or three years, produced a wonderful change upon their farms. They are incloſing with ditch and hedge. They uſe lime with ſummer fallow, and their crops are good;

good; and in particular, I admired a crop of beans, though broadcaſt. Hugh Robſon at Motherwell got a leaſe but two years ago from the Duke of Hamilton. His wheat, peaſe, barley, and oats, ſurpriſe all that knew the former wretchedneſs of that farm. Incloſing is carried on briſkly, and graſs-ſeeds ſown. The farm of Airbreſs is poſſeſſed by James Hamilton upon a leaſe of 19 years certain, and as much longer as he lives. The extent of his farm is 160 acres. He labours but a third, and keeps two thirds in graſs. By this method, the farm is commanded by a ſingle plough, a very great ſaving. The part in tillage receives dung, with the addition of 40 bolls of ſhell lime *per* acre. He has in this manner once gone through his whole farm, and is beginning to open by tillage what was firſt laid down in graſs; and his crops now pay back what extraordinary expence was laid out in the firſt dreſſing. He conſtantly ſummer fallows before graſs-ſeed, and recommends that the fallow be perfectly done. Graſs-ſeeds are always ſown with the firſt grain after fallow. He obſerves, that the taking more than one

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crop before ſowing graſs-ſeeds, is penny wiſe, and pound fooliſh.

I was ferried over the Clyde to viſit a farm in the natural poſſeſſion of Mr *Aikman* of *Roſs*, the proprietor. This gentleman was bred in the army, an excellent ſchool for teaching activity and good order; and accordingly his dwelling-houſe, and every field about it, ſhow an attentive operator. Though one might expect, in fields almoſt ſurrounded with the Clyde and the Evan, a light and gravelly ſoil, yet, on the contrary, clay predominates. The land is all divided into ſmall incloſures with thriving hedges. Theſe in time will prove hurtful, by making a ſtagnation of air, eſpecially as there are, beſides, an oak wood, and much fine old timber on the banks of the two rivers.

His plan of huſbandry is a rotation from graſs to corn, and from corn to graſs. When a field is opened for tillage, there precedes 60 bolls lime ſhells laid on each acre of the ſward. The firſt crop is oats; ſeed ten pecks *per* acre; the average product nine bolls, of ſo good a quality as to

to yield meal for corn. On one ploughing in ſpring, beans and peaſe are ſown, a third part only of the latter. One boll returns eight or nine. Three ploughings are given for the next crop, being barley, well dunged. The ſeed ten pecks *per* acre, with twelve pounds red clover, two white, two yellow, and half a boll ryegraſs ſeed; the return of barley eight bolls *per* acre; he takes hay two years, the firſt year 200 ſtone from an acre, the ſecond 150. The foggage is left to rot on the ground the firſt year; it is paſtured the ſecond; and the whole is ſurrendered to paſture, till the other two parts be gone through in the ſame manner. To ſhow the value of ſome ſpots here, an incloſure of $5\frac{1}{2}$ acres ſown with graſs ſeeds, as above mentioned, yielded of dry hay the firſt cutting, which was the laſt year, no leſs than 327 ſtone the acre. I ſurveyed the crop this year ſtanding in ricks, and reckon that it may amount to 250 ſtone the acre.

Surveying the inſtruments of huſbandry, I found thoſe recommended in the Gentleman Farmer, of which Mr Aikman talks with rapture, as the moſt complete

that

that have been invented, and in particular, finely adapted for cleaning ground.

I ſaw here what well deſerves to be known. Mr Aikman keeps a boat made 14 years ago. The ſides and bottom are made of white poplar, planked as ſoon as cut. The ribs, made of oak, have been once replaced, and are again almoſt rotten, while the planks of white poplar are perfectly entire. I never imagined before that white poplar is ſo valuable.

As the haughs of *Hamilton* pay a high rent, I examined carefully the ſoil, and found it to be good, but in very bad order, and over-run with every noxious weed. I was puzzled to think how a ſet of poor people could pay ſuch a rent, eſpecially as their crops were very indifferent. But the myſtery was unfolded, when I was told that theſe haughs were poſſeſſed by mechanics and manufacturers of the town of Hamilton, who cannot live without a cow or a horſe, and who pay but part of the rent out of the land, the reſt out of what they gain by the occupations they follow. The many young women employed in work-

working lace, contribute to pay a part of the rent. Hamilton lace is every where in great requeſt.

I know no place in Scotland where land can be purchaſed ſo cheap as about Hamilton. Mr Boyes, factor to the Duke, purchaſed, a few years ago, 80 acres, rented at L. 35. It is within a mile of the town of Hamilton, where every article produced in the farm finds a market, and dung is procured in return. Shell lime coſts 10 d. the boll, barley meaſure. The clay part of the ſoil, when fallowed, dunged, and limed, produces in wheat from 12 to 16 bolls *per* acre. Peaſe, mixed with a ſixth part of beans, from 10 to 12 bolls; oats 10 bolls, and barley eight. Mr Boyes aſſures me, that he could let this farm for L. 100 of rent. Part of the land is a dry free ſoil, fit for turnip, barley, clover, &c. But Mr Boyes has not yet ventured to ſtray ſo far out of the common road.

A ſet of incloſures, with thriving thorn hedges, fields well cultivated, young trees growing vigorouſly on the banks, led me to *Earnock*, belonging to Captain *Roberton*,

berton, a farm of 300 acres, divided into inclosures of 10 acres, which, by the bye, I think too small for free ventilation, especially as they are surrounded with strips of trees. I was highly pleased with the mode of culture. Upon his fallowed land he commonly lays 80 bolls of shell lime *per* acre, beside dung. Half a boll, or 10 pecks of seed wheat, produce from 8 to 12 bolls *per* acre. Barley and clover follow.

He has fitted up a house for swine, with different apartments for breeding, rearing, and feeding, which every farmer should have, to consume the refuse of the garden, milk-house, and barn, which can be turned to no other use.

I proceeded to *Strathaven*, over bare uncultivated high grounds. I observed, at many little houses, marks of feeble improvement, some trees growing, and a small inclosure next to the house. These belong to feuers established there before the spirit of improvement commenced in this country. These feuers, who consider themselves as a sort of gentlemen, have continued there, father and son, in an indolent

dolent ſtate, without thinking of any means to mend their condition. They are a ſort of idle amphibious animals, who are above labouring with their own hands, and who train their children to work for them, and for no others. And what do they get for their labour? barely food and raiment. I know of no ſet of men leſs uſeful, either to their families or to the public.

Stratheven has been long famous for good cows and fat veal. Their cows are ſmall, valued from L. 3 to L. 5. They give milk in the ſummer from eight to ten pints daily, and the milk is rich. I have long been of opinion, that no ſort of cows are more profitable, eſpecially when improved by a croſs breed with a proper bull. They fatten readily, and few can compare with them with reſpect to milk.

Their method of feeding calves for the butcher is, to keep them in a dark place, warm, and upon dry clean ſtraw. No blood is taken, nor is a calf put to ſuck the cow. Milk is given by the hand, three times a day, as much as the calf takes with appetite. And the milk is what is drawn laſt from the cow, called the *afterings*, which

which is the richeſt. If the afterings of one cow be not enough, they add the afterings of another. A calf fed in this way makes excellent veal in ſix weeks. But many worthy houſewives here, to gain the reputation of drawing the higheſt price for their veal, feed on to 10 or 12 weeks, and ſell from L. 4 to L. 4 : 10 : 0, though at that time the calf is neither good veal nor good beef. The ordinary price, at ſix weeks old, is from 40 s. to 50 s. What ſhall we think of cows of no higher price at an average than L. 4, giving milk ſo rich and plentiful, as to raiſe a calf of ſix weeks old to 45 s. Edinburgh is the market to which the carcaſes were carried in creels on horſeback, by which they ſuffered greatly. The calves are now carried alive; and the butcher, to fit them for ſlaughter, keeps them a week longer on milk. But now the Lothian feeders on the Engliſh plan, are likely to rob Strathaven of its preference.

Agriculture has many charms; they catch men of all degrees, and of every profeſſion. Mr *Rowan* of *Haugh-head*, trained

ed to the ſea from early years, and long a commander of a trading veſſel, quitted his favourite element, and has become a notable farmer. His little eſtate of 50 acres, and a farm of 60 acres on the banks of the Clyde, rented by him at 35 s. *per* acre, afford ample proof of his ſkill in huſbandry. Dung and lime are his plight anchors. The firſt is brought from Glaſgow, and laid on the land for two ſhillings a cart load, what a ſingle horſe can draw, each acre getting 45 loads. He reckons 80 bolls of lime, which coſt about L. 3, a ſufficient quantity for an acre. His rotation on the light ſoil, which is really good, is potatoes, wheat, barley, graſs-ſeeds, and he takes a crop or two of hay. This is a ſevere cropping; but his ready acceſs to manure is his excuſe. But ought he not to be afraid of wearing out his land at laſt by ſuch cropping? One thing I believe, and think I have reaſon, that both lime and dung, conſtantly repeated without any conſiderable interval, will in time loſe much of their original efficacy. The firſt time that lime or dung is laid on land, it commonly produces the greateſt crops.

A thorough fallow in ſummer on his clay land, prepares it for the ſame quantity of manure that is mentioned above. Wheat, the firſt crop, is commonly weighty. Beans follow, ſix firlots to the acre broadcaſt, the ſoil being too wet and heavy for horſe-hoeing. The product, from five to twelve bolls *per* acre, is a proof of precarious ſeaſons. Barley makes the next crop, the land being prepared by at leaſt three ploughings, ſometimes four. Of graſs-ſeed with the barley, half a boll rye-graſs, and ten pounds red clover. Hay is taken two years, product 200 ſtone *per* acre, reckoning a ſtone at 22½ pounds Engliſh. The barley crop is frequently but indifferent. I wonder not; for if clay be well pulveriſed by three or four ploughings, it admits rain at every pore, and in dry weather unites ſo cloſe, as to be impervious to the tender roots of barley. This gentleman is ſo zealous a farmer, and ſo meritorious with reſpect to the public, that I cannot forbear ſuggeſting to him what I think an improvement on his plan. Beans drilled or ſown in rows generally thrive well; and if horſe-hoeing do not anſwer, let them be a foot aſunder for hand-hoeing, which frees

frees the ſoil of ſurface weeds. But the chief improvement relates to the following crop. After the beans are removed, turn over the land with a deep ploughing. As ſoon as the land is dry after the middle of March, ſow Lincoln barley, which will thrive exceedingly upon the winter furrow mouldered by froſt.

The Captain uſes woollen rags as a manure, and eſteems it highly. He obſerves, that, when ſpread on a ſoil naturally good, it has ſuch an effect on vegetation, as to render the crop ſloomy; not ſo in a thin clay ſoil. Upon ſuch a ſoil he lays 60 ſtone weight cut ſmall, and ſpread immediately before the ſeed furrow is given †. This manure, with the aid of a little dung, will produce a rich crop. The firſt crop was wheat, eleven bolls *per* acre. Peaſe the next crop, an uncertain product. Barley followed, producing ſeven bolls *per* acre. The two laſt crops hay, produced about 100 ſtone *per* acre. The meaſure here is a little above the Linlithgow ſtandard. The rags coſt 6 d. the ſtone weight.

His turnip in broadcaſt are admirable; yet the profits are ſmall, though Glaſgow afforded

† See above, p. 453.

forded once the higheſt prices for beef and mutton; it is now lowered, which is owing to a vaſt increaſe of cattle fed with turnip, cabbage, potatoes, and the refuſe of diſtilleries, all within theſe laſt 10 years.

Approaching to *Glaſgow*, I ſurveyed the fields made famous by Sheriff *Croſs*'s mode of huſbandry, conſtant crops of wheat without dung, for many years, running upon Tull's plan. It is certain, that, for 15 or 16 years, he raiſed crops of wheat far above any man's expectation; and he was fully impreſſed with the notion that they would be perpetual. He found, however, in time, a gradual decay, and if he had lived, would probably have changed his plan. He, however, gave an illuſtrious example to the public, that, by Tull's method, tolerable crops of wheat for years ſucceſſively, perhaps 10 or 12, may be raiſed by the force of labour alone, without any manure. Our wheat crops bear hard upon others, by the quantity of dung that is beſtowed on them; but, if wheat can be raiſed, were it but for ſeven years, without manure, here is a great ſtock of

dung ſaved for other crops. Sheriff Croſs's land, I muſt believe, was of the very beſt kind. So near a great city, and in perpetual tillage, it muſt have imbibed, firſt and laſt, a great quantity of dung, ſo as in a great meaſure to have become a vegetable ſoil; but if, by labour alone, even the beſt ſoil can be made to bear middling crops of wheat for 10 or 12 years running, it lays a foundation for a new mode of huſbandry. Every other crop muſt be highly enriched by the dung that is ſaved; and when the field that has inceſſantly been laboured for wheat is laid out to bear graſs, it muſt be not only highly pulveriſed for the graſs-ſeeds, but greatly benefited by the quantity of dung that can be afforded after ſo long an intermiſſion. Nor need there be dung wanting to ſpread on the graſs from time to time.

Here, again, I dare not mention the great city of Glaſgow, becauſe it would lead me out of my way in praiſe of its inhabitants, virtuous and induſtrious, who carry on manufactures and commerce with equal ſucceſs. I ſhall only obſerve, that it is the great

great ſupport of agriculture in that part of the world.

Mr *Gray* of *Dalmarnoch* has long practiſed the moſt approved modes of agriculture. I was much diſappointed in finding he was not at home, but took a view of his operations. His ſummer fallow was almoſt finiſhed, and the field finely dreſſed; turnip in excellent order; a rich crop of wheat on the ground after a fallow with dung; the ridges made up in the moſt advantageous manner for the ſoil and climate.

Every improver who is ſucceſsful, is entitled to praiſe, in proportion to the difficulties he has to encounter. This obſervation is applicable to Mr *Hamilton* of *Monkland* in a high degree. Having heard much of this gentleman's knowledge and activity in huſbandry, I was anxious to be an eye witneſs. If my expectations were high, they were not diſappointed. When Mr Hamilton entered upon the improvement of his eſtate about 24 years ago, it was worn out by improper management. It

It was a poor wet clay, not a tree nor hedge upon it, not a road for a cart, except in the middle of ſummer, not even to carry dung to the land. There was lime at eight miles diſtance, but could not be brought except in the greateſt drought. His firſt enterpriſe was to make roads, all at his own expence, though in moſt of them the public was alſo concerned. His chief view being graſs for ſheep, which do little miſchief by poaching, the incloſures are made large, and ſo contrived, as that each incloſure ſhould have the ſame quality of ſoil. For want of ſtones, the fences were made as follows. A mound of earth $2\frac{1}{2}$ feet high, is compoſed of the ſurface ſoil of the two ditches, one on each ſide. The baſe of this mound is ſix feet, contracted gradually to four feet at the top, and is lined on both ſides with ſod, which ſoon make the whole unite into a ſolid maſs. The top earth, after being turned over and over, and a compoſt of lime and moſs added, in ſome parts dung, became an excellent preparation for quicks, by which they thrive exceedingly. The thorns now cover

cover entirely the top of the mound, and leave no footing for ſheep. I would not, however, recommend this ſort of fencing as good in every caſe; but there are no ſtones here, which are neceſſary for lining the ditch againſt ſheep, where the thorns are planted on the brink of the ditch. And the high ſituation of the thorns, which is ſo hurtful in a dry climate, is not hurtful here, as the quantity of rain that falls affords ſufficient moiſture to the roots of the thorns.

Moſs is heaped up two years, then laid at the bottom of a dunghill, or under the cattle in a ſtable or byre. This moſs being mixed into the dunghill, or ſaturated with the urine of cattle, is found to anſwer well for turnip, and for the next crop of barley or oats; and if lime be added and harrowed in with the graſs-ſeeds, the graſs is alſo good.

Not a ſpot is left unimproved. What will not bear corn, or to which the plough has no acceſs, are planted with trees. His indefatigable labours have been crowned with ſucceſs; for he now draws of rent from

from 12 s. 6 d. to 41 s. *per* acre, according to the different ſoils.

It is in vain to think of improving land without roads of communication. This county is greatly deficient in good roads; and yet few of the gentlemen have paid ſufficient attention to this circumſtance.

SEVENTH

Survey Seventh.

The order for this year's ſurvey, dated 26th July 1779, directs me to ſurvey the county of Aberdeen and parts adjacent. Rainy weather prevented me from ſetting out till the 2d of Auguſt. I proceeded to Aberdeen by a route different from my former, in order to enlarge my ſurvey.

In Fifeſhire, from Kinghorn to the New Inn, I obſerved on the moor lands many new ſtone incloſures, and, where the ſoil would bear thorns, ſubſtantial incloſures with good ditches. After incloſing, theſe muir lands were broken up and fallowed two years, and then limed at the rate of 35 to 40 bolls of lime ſhells *per* acre, or from 50 to 70 bolls of ſhell marl. The returns of corn and graſs ſhow that the improvers have laboured not in vain. On the better ſort, the crops of turnip, barley, lint, and graſs, are abundant. I remarked with

with pleaſure a conſiderable improvement on the mode of tillage and ridging up ground ſince my former viſit; and many acres of muir planted with fir and other barren trees.

I proceeded to *Cupar* through an extenſive plain of a moſt kindly ſoil, being both light and dry. No ſoil will anſwer better for turnip, barley, and clover, and yet it is vexatious to ſee it ſo much neglected. Have we not reaſon to hope, that ſome perſon of induſtry will appear to give a new face to this delightful ſpot, and to make it return to the landlord a much greater rent than it can poſſibly do in the forlorn ſtate it lies at preſent? That formerly there have been ſome attempts, appears from remains of incloſures made with ditch and hedge. I ſay remains; for no care has been taken to preſerve them from cattle. Yet theſe remains ſhow how good the fences would have been, had they been properly taken care of. Little fields of turnip appeared here and there, but oppreſſed with weeds without number. As I drew near to Cupar, I found flax to be the

the chief crop, and very frequent within reach of the town's dung; and yet, though it is now a point aſcertained, that graſs-ſeeds never do better than with lint, I could not find, upon inquiry, that this is ever done. One would imagine that the poſſeſſors of theſe lands were locked up in an iſland by themſelves, deprived of all communication with the reſt of the world. Would they but take the trouble to look into the Gentleman Farmer, full of good inſtruction, they would find, that the ſowing graſs-ſeeds with lint never fails to produce the very beſt crops of graſs†. But there is ſtill a ſtronger motive for ſowing graſs-ſeeds with lintſeed, where flax is the capital object. Upon the authority of experience, I lay it down as a rule, that, as flax is the fineſt preparation for graſs, ſo graſs paſtured for three or four years, is the fineſt preparation for lintſeed, eſpecially if well rotten dung be ſpread after the firſt crop of hay or paſture. If the ground be broke up by a trench ploughing, which lays the ſward at the bottom of the furrow, it will be in perfect order for lintſeed both by mellowneſs and cleanneſs.

† See Gentleman Farmer, p. 119.

The culture of flax ſeems to be better underſtood here than of corn, owing to the encouragement given for raiſing flax by the truſtees for manufactures. Moſt of the flax is raiſed by manufacturers, who are numerous at Cupar and in the neighbourhood, and who, from the premiums they receive, are able to give the farmer a good rent for his land. The farmer prepares the ground for receiving the ſeed, and the manufacturer does all the reſt. This makes flax an eaſy and advantageous crop for the farmer, which encourages him in lazineſs, inſtead of encouraging him to beſtow more activity upon his other crops.

This country abounds in a good kind of horned cattle, a good aſſortment of which I ſaw in the market-place of Cupar, one of its fairs being held the day I was there.

I proceeded toward *Dundee* by the way of Weſtwater and Woodheaven. No improvement has been attempted upon the moor or hilly part in this tract. Upon the lower fields I ſaw here and there a crop of beans, which would be followed with barley and graſs-ſeeds. From ſuch ſmall beginnings,

ginnings, attended with ſucceſs, we may reaſonably hope that improved agriculture will ſpread faſt in theſe parts. As I paſſed Kidlick, I ſaw 16 fine bullocks cooped up in a ſmall patch of an incloſure, where they had neither choice of food nor liberty of motion. I ſaw alſo a man herding four oxen, paſturing in a bare ill laid down field.

The valley of *Kilmannei* is narrow, but of a good ſoil. The culture is far from being excellent; and yet, from a copious uſe of lime and of dung raiſed on the farm, beſides teathing with cattle, the crops of corn are good. Were this valley well incloſed, I know no place that would yield more plentiful crops of corn, hay, and paſture graſs.

Having ferried over to Dundee, I took a road to *Forfar* that was new to me. In this tract ſeveral fields of wheat and oats were almoſt ready for the hook the 6th day of Auguſt, when I ſaw them, which was early. In my road about three miles from Dundee, every field appeared to be well

well cultivated, excellent fences in good order, the face of the ditch lined up with ſtone. Within theſe incloſures grew peaſe, wheat, barley, excellent crops all of them. Being admoniſhed of harveſt at home, I preſſed on through higher ground, where nothing was going on but here and there a ſpot of firs. Drawing toward Forfar, I ſaw the ſhell marl operations going on. So much reliance there is upon this manure, as to be carried no fewer than eight miles, and truſted to alone for a good crop without dung, of which there is none at hand.

Mr *Scrimzeor* is in the courſe of incloſing and planting a very coarſe muir, the only way it can be made profitable. He has a few other dreſſed fields in hay and paſture.

A neat houſe, ſome plantations, and excellent ſtone fences, attracted my attention. The incloſures appearing to have been done ſeveral years ago, I inquired about the proprietor, who is a minor, and the name of his eſtate is *Inverrighty*. If ſtrips

of

of planting round incloſed grounds deſerve approbation, here is the place. The ground ſlopes gently to the ſouth, and is ſurrounded on three ſides by the planting, open only to the ſouth, by which the ſun and air have free acceſs. But it fares here with the plantations as in other places. Shelter makes it neceſſary to plant thick at firſt, eſpecially in incloſed grounds. But, by ſome ſtrange fatality, no perſon ever thinks of weeding; by which neglect the trees, in perpetual warfare, are left to deſtroy one another.

The ſtone fences I much admired. They are compoſed of ſlate ſtone about two inches thick, caped in the Galloway form; which proves of all to be the moſt effectual fence, as no animal cares to approach it, for fear of bringing the ſtones down about its ears.

Not more than a mile from Forfar, I ſaw a conſiderable muir highly improved by ſummer fallow and ſhell marl. The turnip in broadcaſt were good, as alſo the bear and oats, notwithſtanding the drought

of

of the ſeaſon. From the management of this ground, I was ſatisfied that the poſſeſſor muſt be a man of knowledge and experience. I was told that the poſſeſſor is a tenant to Fletcher of Balenſhaw, of the name of *Dickſon*. The incloſures were made by the landlord of ſtones, and were very ſubſtantially done, like all the other works of that great improver †.

Nothing at Forfar is worthy of particular remark, except the vaſt treaſure of ſhell marl in the lake of Forfar, mentioned in a former ſurvey ‡. As, by the bountiful hand of providence, many parts of Scotland are liberally provided with this manure, it proves a peculiar bleſſing to this county, which has very little acceſs to lime. And I ſhall go on with an account of ſeveral new diſcoveries of the ſame kind, in every one of which the ſoil appears perfectly well adapted to that manure. The loch of Reſtennet, the property of Mr Dempſter, is found to contain a great treaſure of ſhell marl; a boll, reckoned eight cubic feet, is ſold for ſixpence. The marl in Roſcobie loch is another new diſcovery; that

† See vol. 1. p. 301. ‡ See vol. 1. p. 275.

that in the loch of Balgayes is of a long ſtanding. In ſhort, this county is amply provided with this excellent manure, which may be pronounced inexhauſtible, notwithſtanding the demand for it is daily increaſing. By this means the county of Forfar will in time be one of the richeſt diſtricts in Scotland, and will vie with the Merſe or Eaſt Lothian.

Mr *Watſon* of *Turin* having a great name as an improver, led me to a correſpondence on the ſtate of his huſbandry. His letters to me are publiſhed †, and do him honour. I was anxious to ſee what I had heard ſo much of, which anſwered my expectations entirely. He ſhowed me his extenſive improvements, which are conducted in the propereſt manner. His tillage, in particular, is ſuperior to moſt I have ſeen. This gentleman is enterpriſing, and has reſolution to overcome all obſtacles. He adheres to the rearing and feeding ſheep upon ground prepared for that purpoſe, and fenced with ſubſtantial ſtone walls, built at the rate of 9 s. 6 d. for 36 ells. But the great work is a hill of conſiderable extent,

† See vol. 1. p. 332.

tent, incloſed with a ſtone wall caped in the Galloway way. This wall is 3½ feet high, and 18 inches of caping, ſo bold as to terrify even deer from leaping. This great incloſure is intended for ſheep. If theſe do not anſwer, he hopes for ſucceſs from rearing deer. And his ultimate reſource, which he thinks cannot fail, is planting the whole. The ſtaple of earth is deep, the ſoil tolerable, and a ſouth expoſure, all of them proper for planting.

Mr Watſon has given attention to his breed of ſheep; and his opinion is, that Bakewell's large deep wooled ſheep are improper for the ordinary paſture of his country; that they only do well in warm incloſures, full of rich paſture; but that their mutton ſhould never diſgrace the board of a gentleman who has been uſed to the ſmall Scotch mutton †. This improver, ſenſible that, though gentlemen may lead the way, the farmers muſt complete the work, is in the courſe of rearing neat houſes for his tenants, and of letting his land on proper leaſes.

In

† See vol. 2. p. 378.

In my way to Montroſe, I touched at Mr *Scott* of *Roſſie*'s. His ſtock of horned cattle is large, and improved ſtill more ſince my former viſit to him. All his eſtate is leaſed, except 300 acres managed by himſelf. Theſe are chiefly under graſs, the paſture fine. Here is an immenſe ſtock of old hay, which I hope will be conſumed by the troops now at Montroſe; they are paying five pence the ſtone, no mean price, and ſhould not be rejected. Among the ſtock of cows, one I admired above all the reſt. She is of a mixed breed, between the Holderneſs kind and that of this country. Her figure fine, horns ſhort, ſmall, and turning upward; ſmall long head, thin neck, light before, ſtraight back, round body, broad at the huckle-bone, ſhort legged, and a weighty hind quarter, a beautiful ſpangled ſkin, red with a few ſpots of white. She was in very good condition, rather inclining to fat; yet Mrs Scott aſſured me of her giving 16 pints of milk daily during the firſt ſix weeks after her calving *. Mrs Scott's remarkable attention to her family affairs leaves no doubt of the fact.

* See above, p. 439. 466.

Montroſe is a neat clean-looking town, the principal ſtreet ſpacious and well paved. But the houſes are aukwardly placed, and their gables fronting the ſtreet. The inhabitants are full of ſpirit, deal both in the linen and woollen manufactures, and carry on a conſiderable trade by ſea.

I proceeded along the ſhore toward *Bervy*, through a narrow country, that ſoon riſes into hills, but warm and proper both for corn and graſs. Any attempts here to incloſe is, for want of ſtone, to raiſe earth dikes with a whin hedge on the top; but the frequent gaps ſhow that no care has been taken. This part of the country appears extremely populous, which is an encouraging circumſtance for huſbandry. I found accordingly many well dreſſed fields, covered with turnip, potatoes, barley, and wheat. I ſaw one crop of beans, but ill managed, and the ground full of weeds. At Charleton I ſaw a field of turnip drilled to the utmoſt perfection, which I hope will be a copy to the neighbourhood. Lime I ſaw ſpread upon graſs, but with

with ſo ſparing a hand as to make me doubt whether it will afford any ſenſible benefit.

The improvements of Mr *Scott* of *Netherbenholm*, at Muirtown, are carried on briſkly, ſummer fallow well executed, and lime at hand. Wheat probably is intended; but, as the ſoil is ſoft and light, I ſhould prefer barley. Wheat on ſuch ground bears very hard on the following crops. As this gentleman was not at home, I miſſed the opportunity of being inſtructed about his plan. All I can ſay more is, that his crops in general were good. I cannot leave this agreeable tract of ground without obſerving, in general, that the poſſeſſors ſeem to be intent upon corn only, without having any notion of graſs, which, excepting a few ſpots of clover, is very poor. It raiſed my indignation to ſee a ſtock of horſes, oxen, cows, &c. toiling hard to procure as much graſs as to keep them alive. Can the proprietor have any poſſible expectation that creatures ſo ſtarved can ever work or give milk? It is all a piece of deceit. A large ſtock of cattle

cattle pleaſes the eye; but it is not conſidered that a ſtock ſo ill fed is an annual loſs; whereas the half of that ſtock, well fed, would afford an annual profit. But, in ſome meaſure to balance this account, it is but doing juſtice to the cottagers to obſerve, that they appear neat and clean, not only in their perſons, but in their houſes.

From *Bervy* to *Stonehaven*, the country is thin of inhabitants, high land, poor and naked, except where heath grows rank; yet many parts are capable of improvement, of which I ſaw two inſtances of land belonging to Sir William Ogilvy and Mr Young, feeble, indeed, but it is always good to begin. What is here done by lime, ſhows that the ground is not unworthy of cultivation, which will certainly ſtimulate theſe gentlemen to proceed with alacrity. From a height I perceived a valley bordered by the ſea, containing many farm-houſes, and good crops waving in the wind. I was rejoiced to view, even at a diſtance, appearances of good culture in this dreary part of our country; but could not

not deſcend into the valley, the day being far ſpent. I accordingly haſtened forward to Stonehaven, a ſeaport town, of little other conſideration than its conveniency for landing lime from Sunderland or the Frith of Forth, which is chiefly occupied by Mr Barclay of Ury for importing lime, and ſending out wheat flour, of which he manufactures conſiderable quantities with his mills in the vicinity of the town.

It was now the 8th of Auguſt, and harveſt fairly begun at that town. At *Ury*, in the neighbourhood, belonging to Mr *Barclay*, peaſe, oats, wheat, and barley, were cut. This is the earlieſt harveſt that has been known in this country for 50 years back. With reſpect to Mr Barclay, I have nothing to add to my former ſurvey, but that he proſecutes the ſame plan, and has added to his farm ſeveral improved acres. Anxious to reach Aberdeen, I left Ury between ſeven and eight at night, deprived by that means of a view of the country, which, I am told, I have little reaſon to regret.

ABERDEEN-

ABERDEENSHIRE.

THIS county is happily ſituated for conveniency of export and import, with abundance of commodious harbours, of which Aberdeen, Peterhead, and Fraſerburgh, poſſeſs the beſt. Agriculture, manufactures, and trade, agree here moſt cordially in ſupporting one another; and all of them are ſupported by roads of communication, lately perfected, from the remoteſt parts of the county to every market town, and to every ſeaport. Can there be contrived a ſituation more advantageous for huſbandry? Beſide theſe important articles, population goes on apace. The inhabitants are ſober and induſtrious; and the following particulars will ſhow that wages and proviſions are moderate. The wages paid to labourers, in remote parts, are from 5 d. to 7 d. *per* day; at Aberdeen, 9 d. in winter, and 12 d. in ſummer. The women are ſo well employed in knitting

ting ſtockings, as ſcarce to undertake field work even at 6 d. Beef gives 2½ d. a pound, and mutton 3 d. Dutch weight. In the ſpring, beef and mutton riſe to 3½ d. 4 d. and 4½ d. *per* pound, there being little or no early graſs in the county. A pound of butter, of 28 ounces, can be had for 7 d. and cheeſe, poultry, and meal in proportion. There is limeſtone in the county, but not hitherto found in ſufficient plenty. There is ſea-weed on the coaſt from Peterhead to Banff, and abundance of ſea-ſhells thrown upon land by the ſea in little hills, particularly at Fraſerburgh, and along the adjacent coaſt. It grieved me to ſee ſome ignorant farmers repairing the high road with theſe ſhells, a very bad ſtuff for a high road, and a loſs of manure to themſelves. They have indeed no coal but what is imported. Peats they have in plenty; but they are too remote from many places to be a cheap firing.

The amazing increaſe of manufactures at Aberdeen, and conſequently of trade, have added greatly to the number of its inhabitants. I am well authoriſed to ſay, that, in Old and New Aberdeen, including the houſes between them, and the ſuburbs ex-

extending to the bridges over the rivers of Dee and Don, there are at leaſt 25,000 people, old and young. The number of horſes and cows have increaſed in proportion, which has added to the demand for graſs, and alſo to the demand for hay, corn, and vegetables. Proſperity in trade and manufactures has ripened a plan for improving the harbour, that 40 years ago would have been deſpaired of. It will coſt, indeed, about L. 20,000; but the money is laid out at home, and the harbour will be a ſafe refuge in all weathers, which it was far from being formerly.

The exports are oat meal, ſalmon pickled for the London market, and ſalted for exportation, ſtockings, and ſewing thread. Imports are, wool, flax, oil, articles chiefly conſumed in the manufactures of ſtockings and thread. It is very happy where the manufactures of a country are grafted upon its product. This may ſooner or later be the caſe of Aberdeenſhire, with reſpect to its manufacture of thread, though hitherto a large proportion of the flax uſed for that manufacture is imported. But it never can be the caſe of the manufacture of ſtockings; the wool proper for that

that manufacture being imported from the ſouth of England, as no proper wool grows at home. And yet, were the county highly improved and warmed by incloſing, ſo as to feed ſheep that carry a fleece fit for combing, wool might be procured at home to leſſen at leaſt part of the import. To ſhow the extent of the ſtocking manufacture, I am credibly informed, that, in the currency of a year, wool ſhipped at the port of London for Aberdeen, was inſured to the value of L. 40,000.

I delight to mention a conſiderable brewery for making porter, erected chiefly with a patriotic view. This brewery was erected to give vent to their own bear and barley, and to ſave great ſums remitted annually to London for porter. This brewery meets with great encouragement, and it is the great boaſt of the citizens, that they can now rejoice over their own porter, inſtead of bringing it from London.

There is perhaps no place in the world where a ſpirit for huſbandry has made ſuch a figure as about Aberdeen. A corner between the ſea and the rivers Dee and Don, has for many years been cultivated in the

moſt ſkilful manner by a mixture of the garden and field crops, one year cabbage, next year barley, one year turnip or potatoes, next year oats, and ſo alternately, a mode of cropping unknown any where elſe in Scotland. But, that ſpot excepted, the town of Aberdeen was on all hands ſurrounded with a dry, barren, ſtony muir, cloſe to the very houſes. Here the ſpirit of the inhabitants for huſbandry, or perhaps to have country villas, was conſpicuous. It might appear vain to think of improving that ſoil for profit; but the citizens, prone to beſtow that way any money they could ſpare, fell to work, and perſevered without regarding the expence. From L. 20 to L. 25 *per* acre was not ſufficient to deter them. And now the fields about Aberdeen, to the diſtance of three or four miles, carry as rich crops as are to be ſeen any where in Britain; which inclines me to think, that the land here, although full of ſtones, when the ſtones are carried off, muſt be naturally rich. Upon the whole, conſidering the ſolidity of the improvement, I am not certain that the

citizens

citizens of Aberdeen could have beſtowed their ſuperfluous money more profitably.

I ſhall confine myſelf to a ſingle inſtance of improving the barren land about the town of Aberdeen, and that is the operations of Adam Duff, Eſq; late provoſt, which may be held up as an example to all around him. He feued from the town 150 acres, as ſtony and barren as any in the neighbourhood. The former examples of improvement made him give 3 s. *per* acre of feu-duty, though at the time not worth one penny *per* acre. All the ſurface ſtones were firſt carried off to the places lined out for the fences. The next operation was trenching with ſpade and mattock, to the depth of from 20 to 24 inches, in order to remove all impediments to ploughing. The ſmall ſtones, unfit for a wall, were thrown into the bottom of the trench as a drain to carry off water from the ſurface. The ſuperfluous ſmall ſtones were carried off for making roads. This operation, including blaſting with gun powder and expence of tools, coſt L. 6 Sterling *per* acre. The expence of ploughing, harrowing, forming ridges, making open drains, and

and building dikes, coſt near L. 12 Sterling more. Manure carried from Aberdeen, conſiſting of dung and rubbiſh of old houſes, coſt little leſs than L. 8 Sterling. So that the improvement of a ſingle acre amounted to little leſs than L. 25 Sterling before the ground was prepared for a crop. The firſt crop was turnip broadcaſt, well hand-hoed, which ſold for L. 6 *per* acre to the people of Aberdeen, they being at the expence of taking up and of carriage. The ſecond crop bear or bigg, L. 8 Sterling the acre. The third crop clover. The firſt two years hay; and then let out for paſture at a yearly rent, from 33 s. to 38 s. *per* acre. The poverty of the country, as to graſs, is the cauſe of this high rent. The graſs-ſeeds ſowed were 12 pounds red clover, 6 of white, 4 of ribwort, and 3 buſhels ryegraſs. In my opinion, a leſs quantity of ryegraſs would have done better, ſuppoſing the ſeed to be good. Conſidering the original condition of this farm, the change in ſo ſhort a time into fine paſture graſs appeared to me amazing. Mr Duff led me to ſee two fields upon which he had begun two operations,

and

and proceeded in them preciſely as in the field now deſcribed. After ſeven years paſture, theſe two fields were broken up laſt year with oats, and the crops were excellent. Peaſe alſo are ſown here in larger quantities than are uſual in other parts of the country. The land here, when free from ſtones, is, in the proper ſenſe, a virgin earth, never formerly cropped, and which appears by experience to be extremely prolific. Lime produces wonderful effects upon ſuch a ſoil, and I recommended it to the provoſt with all my might. Feeding oxen at the ſtall with turnip and hay, and rearing young cattle, is Mr Duff's preſent operation, chiefly for increaſing the dunghill. Were it not for that reaſon, he would find more immediate profit in ſelling his turnip to the people of Aberdeen, as alſo his hay, which gives commonly from 6 d. to 7 d. *per* ſtone, of 20 pounds Amſterdam, and in this dry year gives 10 d. The ſtone fences here are capital, as are all thoſe around that were lately reared. Thoſe near the town are far inferior, being the firſt that were reared when there was little ſkill in rearing ſuch fences. But near the town

there

there is little need of good fences, as the fields are never paſtured, the common rotation being turnip, cabbage, kail, potatoes, barley, or oats with red clover ſeed for cutting green. A demand for theſe from the town is conſtant. How the town could ſubſiſt before theſe improvements began, with any degree of comfort, is not eaſy to ſay. But now, after enjoying the ſweets of ſuch huſbandry, it is very eaſy to ſay, that, to be deprived of them, would be deplorable. There are many feus about the town of Aberdeen, conſiſting originally of the ground I have deſcribed, that give in rent now from 35 to 40 ſhillings *per* acre. The immenſe demand for vegetables and hay is what ſupports this rent.

I called upon Mr *Angus*, late bookſeller in Aberdeen; for men of all ranks here are ſtruck with the enthuſiaſm of farming; and in no place of the known world is ſuch enthuſiaſm more neceſſary than about the town of Aberdeen. This gentleman obtained in a feu, ſome miles from the town, about 40 acres of the ſame ſto-

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ny muir, and pays a very high feu-duty, no leſs than L. 25 Sterling. I met him in the fields attending his labourers carrying off ſtones. The largeſt ſtones were carried off in a ſlip, drawn by four ſtout oxen, much larger than what are commonly bred in this country. This improver is not only full of enterpriſe, but ſkilful in conducting his operations in the beſt manner. As trenching with ſpade and mattock is ſlow and expenſive, Mr Angus turned his thoughts upon doing it with the plough. He began with clearing the ground from every large ſtone upon the ſurface and under it, which work alone coſt him L. 10 Sterling *per* acre. He then ſet to work a ſtrong plough drawn by ſix capital oxen, and took ſo deep a furrow as to be equal to a trenching.

The eſtate of *Robſlaw*, that not many years ago was rented at no more but L. 100 Sterling yearly, is rented now at L. 600; not by the induſtry of the proprietor, but by its vicinity to the town, which engaged the citizens to take feus and long leaſes at an advanced rent.

Mr

Mr *Moſsman*, advocate in Aberdeen, has an eſtate about three miles from Aberdeen, originally as barren as any about the town. As paſture was his object, he began to fence with good ſtone dikes and ſtrips of planting round every incloſure, very comfortable in this cold climate. In this way 50 acres are finiſhed and ſet to a ſubſtantial tenant, for 19 years, at 40 s. *per* acre, upon the following conditions. After paſturing five years, one crop of oats, another of barley with graſs-ſeeds, to be paſtured five years, two crops of corn as before, and then to be paſtured during the remainder of the leaſe. The ſelling of hay is prohibited. With a rent ſo high, more advantageous terms for the landlord could not be demanded. The only objection made to this mode of cropping is, that there is no care for preventing couch-graſs; but the nature of the ſoil is ſuch, as to give no encouragement to that weed. There is another objection, that appears to me much more formidable, which is, that the tillage neceſſary for the two crops of oats and barley, will not pulveriſe the ſoil ſufficiently for graſs-ſeeds, nor eradicate the roots

roots of many noxious weeds that will get footing in the ground.

Were a traveller in his wanderings to come upon any farmer in the neighbourhood of Aberdeen commencing his improvements upon this ſtony barren muir, he would, without the leaſt heſitation, pronounce the poor man to be crazy. Any one would think ſo with reſpect to the firſt improver; but now the certainty of ſucceſs makes it a rational ſyſtem for gain, and ſpreads the improvement of that muir wider and wider every day. At preſent, as far as one can caſt his eye round Aberdeen, there is not a veſtige of the muir remaining.

Mr *Paton* of *Grandholm* encourages his tenants not only by kindneſs, but by example. He gives leaſes for 19 years, much longer than is ordinary in that country, and at moderate rents. Thus he combines his own intereſt with that of his tenants, and both with the good of his country. Mr Paton originally was none of thoſe ſanguine improvers who make every convenience of life yield to the plough.

He began with erecting a neat houſe and proper offices, and then proceeded to ſmooth the ground round his houſe, and to lay it down in graſs. He now advances outward, and has begun to take in a muir of great extent, little better than that about Aberdeen, except that the ſtones upon it are leſs numerous. He has adopted the method above deſcribed, of opening the ground with a ſtrong plough, which pierces from fourteen to eighteen inches deep. He employs in this operation no fewer than ten good oxen. His apology for ſuch a number is not that they are abſolutely neceſſary for ſo deep a furrow, but that they relieve one another by taking up the draught by turns. Mr Paton would not be capable of reaſoning in this way, but from the prepoſſeſſion of cuſtom. To leave oxen to pull or not, according to their own diſcretion, would be a very imperfect way of relieving one another. I have often ſeen 10 oxen in a plough in the counties of Aberdeen and Banff; but I never once ſaw them pulling all together. One or other of them are ſeen hanging on the yoke, keeping back the draught, inſtead of advancing it. Would

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it not be more rational to imitate Mr Angus's draught of ſix oxen only, and to change them at times with the other four. Every clod and every ſtone on the ſurface being torn up with the brake harrow, and carried off, the field is croſs ploughed with the ſame ſtrong plough, and again braked as before. Thus, in the courſe of two years, this barren muir is well pulveriſed. And now being divided into ridges 15 feet broad, it is limed at the rate of 30 bolls of ſhells, Linlithgow meaſure, upon each acre, at no ſmall expence, 2 s. 6 d. *per* boll at the ſhore, beſide carriage. The firſt crop is black oats, about four bolls *per* acre. All the dung that can be procured is laid on as a preparation for the next crop, which is turnip, after two or three ploughings, kept clean by hand-hoeing. As no weeds can yet get footing in this new ſoil, drilling and horſe-hoeing ſeems unneceſſary. The turnip are employed in ſtall-feeding oxen. Bear or oats with graſs ſeeds make the third crop. I recommended white clover, ribwort, trefoil, and rye-graſs, for bringing on a cloſe ſward, to be rolled two or three times after appearing

above

above ground. In ſuch looſe ſoil, rolling at intervals is in a manner eſſential for preſerving the tender roots from drought in ſummer, and from rain and froſt in winter. I adviſed him to leave out red clover, to which this ſoil would not be friendly. The expence of improving this muir, the ſtone incloſures included, is about L. 8 *per* acre. The ſtones all about Aberdeen are true granite, which being carried to London in great quantities for paving the ſtreets, proved a great relief to the farmer. That article of commerce ſtill continues; but it is much more confined, as no ſtones are now demanded but of the largeſt ſize, fit for lining the ſides of the cauſeways.

Mr *Hugh Leſly*, ſon to Profeſſor Leſly in the Old College of Aberdeen, while he applies diligently to his ſtudies at college, employs every ſpare hour in attending to various branches of improvement on his father's eſtate, which, fortunately for him, is within a quarter of an hour's walk of the college. His firſt attempt was difficult, a rich ſpot of low lying ground, into which ſprings from the higher grounds conſtantly

ly flowed. Drains were ſo diſpoſed as to cut off the ſprings on the ſides of the bank, and to lead them all into a main drain, which laid the whole dry and fit for cultivation. There is but upon one part a plentiful crop. Graſs-ſeeds were ſown with the lint, which he learnt from the Gentleman Farmer, and ſucceeds wonderfully. Mr Leſly intending to ſave the ſeed, I adviſed him to ſtack the ſheaves with the top outmoſt, and to cover the ſtack well, to prevent rain from penetrating. Thus the bows are ſoon dried, and the ſeed ſecured, which is a valuable article. Mr Leſlie has informed me of his ſucceſs, and of his having ſaved a great quantity of good ſeed. His crop of bear is good, and is ready to be cut this 10th of Auguſt. His turnip broadcaſt is excellent, and he expects eight guineas the acre from the town's people, they pulling and carrying off at their own expence.

Beautiful and uncommon appearances around a ſmall, but neat houſe, drew my attention. Unequal ſurfaces, ſome high, ſome higher, ſhelving banks, and a ſmall valley

valley through which a purling ſtream ſteals gently. Stepping in to gratify my curioſity, a ſerpentine walk led me to a pretty little garden, decorated with flowers and uſeful plants. The ſhrubbry was fine, a grotto, a temple, a hermitage, in proper ſequeſtrated places, every clump and ſingle tree placed to advantage, and form upon the whole a very entertaining group. I ſtood involved in contemplation; and wiſhing to know the proprietor, who muſt be a man of ſingular taſte, was told that it was Mr *Leſlie*, a citizen of Aberdeen, at preſent in trade, but about to give up the buſtle of buſineſs and to retire in quiet to his rural habitation.

John Auldjo, a moſt reſpectable citizen, and eminent in the mercantile line, entered deeply into an extenſive brick and tile work, which he carries on with great ſucceſs, his bricks and tiles being in high eſtimation all the country round. His ſucceſs in trade enabled him to purchaſe an eſtate on the ſide of the river Dee; the ſoil is tolerable, but in a ſtate of nature. He began with the beſt of the common modes of

of huſbandry, and got pretty good returns. But not ſatisfied, he has entered into a ſuperior plan of cultivation. I paſs the mode of fallow, turnip, potatoe, &c. familiar with every improver, confining myſelf to what is new. Having opportunity of plenty of bark from a neighbouring tannage, his method is to mix it with horſe dung hot from the ſtable, heaped up to a conſiderable height. A very ſlow fermentation commences, which is not finiſhed in leſs than ſix months. Then the heap is turned over, and the parts intimately mixed, which brings on a ſecond fermentation, which laſts other ſix months, and then becomes a rich manure fit for uſe. Of this manure, 40 or 50 cart loads are laid on an acre, each cart holding little more than $2\frac{1}{2}$ bolls Linlithgow meaſure, as a preparation for bear or bigg, mixed with the ſoil by two ploughings. Graſs-ſeeds ſown with the bear thrive wonderfully. At a neighbouring fiſher town are brought in immenſe quantities of the fiſh called ſea-dog. They are valued for the oil only that is extracted from their liver. Mr Auldjo purchaſes what is left at a very moderate price;

price; and they prove a valuable manure when prepared in the following manner. A large hole is made in the earth three or four feet deep. The bottom is covered with the upper ſtratum of a peat moſs, unfit for burning, 12 inches thick; then a ſtratum of fiſh, and ſo alternately till the hole is filled up; the upmoſt ſtratum being cloſe and thick, to prevent dogs, &c. from tearing out the fiſh and eating them. This is done from July to September, when the capture of that fiſh is moſt ſucceſsful. In January or February this compoſt is turned over and well mixed, and makes an excellent manure for bear or bigg, 30 or 40 cart loads, as above, being laid on an acre. The bear is always a good crop. Sometimes peaſe ſucceed; but he generally takes an oat crop; for in this part of the world the practice of intermixing green crops is little known. The excellence of this compoſt may be known from the rich crops of turnip it produces, even when taken after the two white corn crops, which will afford much more food to the poor people than the fiſh itſelf would do, were it even eatable. But I am not yet done with the con-

contrivances of our improver for raiſing manure. A large quantity of turf from the moſs, when perfectly dry, is made the foundation of a large heap. When ſet on fire, and it begins to burn briſkly, a quantity of clay is laid above, then a ſtratum of turf, and another ſtratum of clay as the fire advances, till the heap be raiſed as high as a man can reach. A thouſand cart loads have been obtained at a ſingle burning. Sixty of theſe loads on an acre for oats and peaſe, do wonders; and 30 or 40, as a top dreſſing for graſs, never fail to mend the crop. Mr Auldjo provides the clay in ſummer, and dries and breaks it ſmall. Beſide the expence, I am not clear that it is the beſt method. Much of it muſt be reduced to powder, which tends to ſtifle the fire inſtead of promoting it. Would it not be better to heap up the clay in a moiſt ſtate, which, when dry, becomes hard and compact, and the fitter to contain and tranſmit a quantity of heat, beſide that the aſhes produced are better than from looſe mouldering ſtuff?

In my road from Aberdeen to Udny, I obſerved the incloſures of Mr *Dyce* at *Tullygreig*. The crop of corn on the ground is pretty good, the culture much better than is ordinary in theſe parts, and, though the ground was high, the crop was neat ripe.

I miſſed Mr *Ligertwood* of *Tillery*, but ſaw turnip in a field of his growing with vigour. They were indeed too ſtrait between the rows, the conſequence of which will be an inundation of weeds. Improvers are apt to fall into that error at firſt. To them a two feet interval appears a great deal of ground left bare. But they learn from experience, that four feet intervals is a ſmall enough ſpace for cleaning ground with the plough when it is foul, beſide that the turnip draws much of its nouriſhment from theſe intervals.

Mr *Udny* of *Udny*, commiſſioner of exciſe, has been long a zealous promoter of huſbandry, by ſhowing frequent examples to his neighbours both of ſkill and ſucceſs. When he ſet about improving his eſtate round his houſe of Udny, the ground differ-

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ed very little from that round the town of Aberdeen. If there was any difference, the ſtones were larger, and conſequently more difficult to be ſubdued. Yet this Herculean labour was performed by that gentleman, at a great expence indeed, and with unremitting perſeverance. At preſent there remains no veſtige of what the ground was originally, nothing to be ſeen but the neat incloſures, hedges thriving well, commodious offices, which in the heart of a country not much improved, catches the eye of a traveller, and makes him loath to proſecute his journey. I confine myſelf to the commiſſioner's preſent mode of culture; for to go back to the beginning, and to note every particular, would fill a volume. After five or ſix years paſture, the field is ploughed before winter, and oats ſown in the ſpring on the winter furrow, which commonly are a good crop. Turnip follow in rows three feet wide, where the ground is mellow and clean, four feet where leſs ſo, the rows being dunged and covered with earth, upon which the ſeed is drilled; after which, ploughing and weeding with the hand goes on. I viewed a large field ſo conducted, and I never

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ſaw a better crop. It is conſumed by oxen at the ſtall, milk cows, and winterers, which makes a large dunghill, a very valuable commodity in that part of the country, diſtant from towns and villages. After turnip comes bear, with which is ſown 16 lib. red clover ſeed for feeding horſes, cows, oxen, &c. next ſummer, which alſo produces much dung. Inſtead of red clover, white peaſe are ſometimes taken. Bear goes next after three ploughings with ryegraſs ſeed. The next two crops are ryegraſs hay, and then paſture for 5 or 6 years, which concludes the rotation. The farm is large, conſiſting of no fewer than four hundred acres; and, for eſtabliſhing a colony of ſervants and day-labourers, 200 acres are ſet apart; a portion allotted of theſe acres, and a houſe for each family, by which a rent is made ſure, and ſervants always at hand ready to anſwer every demand for carrying on the ordinary work of the farm and improvements.

Many acres have been planted with great ſkill and addreſs on this large eſtate, which is verified by the thriving of the young trees, and of oaks in particular. The contents of this eſtate are about 5000 acres; hence

hence it may well be adviſed to plant a great deal more as a proper improvement of the ground and a public good. I object only to the white peaſe, which, whatever indulgence a gentleman may give to his own fancy, ought never to be the choice of a tenant; firſt, as being an early crop, it is always devoured by pigeons, &c.; and next, that the gray pea affords much more ſtraw.

Mr Udny is famous for a breed of horſes, full blood on both ſides. As I am no hunter, and far leſs given to horſe-racing, I lean more to the mixed breed, a full bred ſtallion for example, with the beſt of our country mares. Lord Monboddo prefers a ſtallion of our own breed with full blooded Engliſh mares; and indeed his Lordſhip breeds excellent horſes for the draught.

I admired Mr Udney's Engliſh bull, ſhort horned. His cows are good, ſome from England, ſome from Berwickſhire, and ſome the very beſt of his own country breed. He rejects the Lancaſter kind, and all that have long horns. His croſs breed are excellent workers. His cows give much milk and rich butter, and they take on fat readily.

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The commiſſioner is poſſeſſed of a very fine limeſtone rock, which may be made a great bleſſing in this part of the country. By ſeveral miſcarriages, it has not yet been brought to a bearing. But the commiſſioner is about to build a draw kiln upon an approved plan; which will not only afford him plenty of lime for his own uſe, and for that of his tenants, but alſo to ſerve his neighbours. With reſpect to this farm, I ſhall only add, that all the implements of huſbandry are of the very beſt conſtruction, being made by Mr Crichton at Edinburgh, whoſe fame, not only for materials, but for workmanſhip, will be admitted to be well founded by every one who employs him. In this part of the country, horſes, horned cattle, cheeſe, and butter, find a market at every village; but Aberdeen is the chief market for grain, a very long carriage.

Early in life Mr Udny, ſenſible that agriculture can make but a ſlow progreſs without encouraging ſkilful tenants by long leaſes, prevailed on Mr *Anderſon*, a young gentleman of a good ſtock, and addicted

dicted to husbandry, to leave his habitation near Edinburgh, and to settle in Aberdeenshire, at *Monkshill*, upon a tack from Mr Udny of no fewer than 1130 acres, and of no shorter endurance than 63 years, and with power to assign or subset. Several farms were taken in, year by year, to make up this great farm, and the rents then run from 19d. to 28 d. the acre, which was stipulated to be the rent in Mr Anderson's lease during the first 10 years, and thereafter to rise one fourth of the established rent, and so forth progressively at every tenth year, till the rent doubled the first amount. I could not have any doubt of finding a farm in the very best mode of cultivation and highly improved. I hastened there, greedy to receive instruction from a gentleman who makes a figure by his publications; but I was much disappointed in neither finding him nor his overseer at home. All I saw was a field of turnip, one of oats, and one of barley, all in good order.

I stopt at the village of *Ellon*, agreeably situated on the north side of the river Y-than. I cannot admire the husbandry, though the soil is excellent, capable by good culti-

cultivation, of making great returns, particularly of turnip, cabbage, red clover, &c. It is within the reach of lime, which by water carriage may be brought within four miles. Yet all theſe advantages are neglected, the tenants are poor, and the crops ſtill poorer. The Earl of Aberdeen poſſeſſes great tracts of land in this part of Aberdeenſhire, which, lying in a ſtate of nature, muſt be low rented. It is a great misfortune to be too rich; for it makes many men negligent as to the improvement of their eſtates. That nobleman, by laying out what he can well ſpare, has it in his power to double the rent of his great eſtate. He has a thing much more valuable in his power, which is, by good cultivation, to draw people from a diſtance, and to give comfortable bread to thouſands who are but indifferently provided. Here true patriotiſm may be diſplayed, that carries no falſe colours.

Mr *Buchan* of *Auchmacoy* is a pleaſant old gentleman, who has given great attention to farming. His farm conſiſts of 400 acres, rather too much for a gentleman of his

his years. Accordingly he declares himſelf willing to leaſe the bulk of it; and in order to entice ſkilful tenants to every part of his eſtate, he purpoſes to give leaſes of 19 years endurance, with the life of any perſon the tenant ſhall name when he has been five years in poſſeſſion. The ground of this farm is very different from what I have hitherto ſeen in Aberdeenſhire, not a ſtone on the ſurface, and ſcarce any under it. This led Mr Buchan, when he firſt thought of incloſing, to make earth dikes for want of ſtone. But experience taught him, that there is no fence more caduciary. There is ſcarce any earth that can ſtand firm againſt waſhing rains in winter and drought in ſummer; and if ſuch earth could be found, a more formidable enemy remains, which are horned cattle, who love to thurſt their horns into an earth dike, and to toſs it about them. The better fed, the more prone they are to that diverſion. This brought him at laſt to hedge and ditch, and his fences of that ſort are good. The ſoil in general is a deep loam upon a clay bottom, but variable in its quality, ſome muiriſh, ſome light with a mixture

of gravel, and ſome real good loam; but all foul and full of weeds, which got a kindly reception from the tenants who poſſeſſed the land before him. As the quicks planted by Mr Buchan grow well, I ventured to adviſe to make a border of freſh earth at the root of the old earth dikes, and to plant quicks there, to be defended from the cattle by a ditch; and when the quicks were advanced, to throw down the old dikes, which will be a good manure, after being ſo long expoſed to ſun and froſt, eſpecially if mixed with a proportion of lime, and ready to be carried off at any time to the next field. There was great neceſſity of beginning the improvements with a ſummer fallow, in order to clean the ground of weeds. Forty bolls of ſhell lime are appropriated to an acre, which are brought by ſea from Lord Elgin's lime-works, or from Sunderland in the county of Durham, and brought up the river Y-than with the tide; the former, beſide the carriage, coſts 2 s. 6 d. The firſt and ſecond crop oats, third peaſe, fourth bear with graſs-ſeeds, ſix pounds red clover, ſix pounds white, and four buſhels of hay

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ſeed. As the graſs crop did not anſwer, he ſubſtituted 16 lib. red clover and one buſhel of ryegraſs, where hay only was intended, or green food for the cattle. But, if paſture was intended, the quantities were 10 pounds red clover, ſix pounds white, and two buſhels ryegraſs; an alteration much to the better, which, however, may be improved when paſture is intended, by adding a few pounds of ribwort and yellow clover.

The crops on the infield I expected to find, as they truly were, exceedingly good. But I was ſurpriſed to find ſuch crops in the outfield which had never ſeen dung, by the force of lime alone. The oats, peaſe, and bear, would all be reckoned good crops in the Lothians. Upon one field, in particular, there grew the third crop of oats in immediate ſucceſſion, which I ſhould not reckon too high at ten bolls *per* acre. Such is the effect of lime on new ground never limed formerly, where the ground takes with it. At the ſame time, I muſt obſerve, that this is ſevere cropping; and Mr Buchan will find himſelf under the neceſſity of being more gentle to his ground when

when he finds a ſecond liming neceſſary. Suppoſe he ſhould take oats the firſt crop, peaſe the ſecond, bear the third, red clover the fourth, for feeding green, which will make an addition of dung. Open it after the clover for turnip broadcaſt, which muſt have dung, at leaſt 15 cart load to the acre. Let it be ſpread on the ground immediately before the ſeed furrow, the heat of which will make the turnip vegetate quickly, and be a means of eſcaping the black fly. After the clover is exhauſted, the turning over the ground before winter will be a good preparation for the turnip crop, by giving an opportunity of chooſing a proper time for the ſecond ploughing, and even for a third, if neceſſary. The feeding ſheep on the ground with turnip, is one of the greateſt improvements of a ſoil; but here the hedges are too young to venture it.

Mr Buchan has fine farm-offices, perfectly commodious. His implements of huſbandry are far ſuperior to the common ſort, though not equal to thoſe uſed by Commiſſioner Udny. Mr Buchan's example begins to operate upon his tenants. Moſt

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of them have turnip and patches of red clover. Theſe beginnings are feeble, but they will be found to be beneficial, and then they will go on with rapidity.

There are in this diſtrict commodious markets for corn, and a ſeaport within two or three miles for carrying it to be ſold in the Frith of Forth, and lime brought in return. Stall fed cattle are not common here, as people uſed to a lower price can ſcarce think of paying for fat meat. But difficulties attend every new article of commerce. The difficulty was the ſame in Berwickſhire and the Lothians. But now people have come to underſtand their intereſts better. So will the people of Aberdeenſhire; and then feeding of cattle will be a profitable article for the market of Aberdeen, as well as for inferior markets.

In this tract day-labourers are hired for 6 d. a day in ſummer, and 5 d. in winter. A ploughman hired by the year gets L. 4 Sterling for wages, and, if not maintained in his maſter's houſe, he gets two pecks of oat meal weekly. Thus, upon a fair computation, the labourer draws leſs yearly than the

the hired ſervant, which is not a little ſingular. I was ſurpriſed at it, till, upon examination, I diſcovered the reaſon. The labourers, all of them, poſſeſs a piece of ground at a low rent, ſufficient to maintain a cow, and the ſmall hire is compenſated by the profit of the farm. This method, at the ſame time, tends to population, by rearing many children; and it is of great advantage to enterpriſing farmers to command hands for carrying on with expedition any of their plans. Let me only add, that this is the only way to keep down the hire of labourers, it being always in the landlord's power to raiſe the rent upon the labourer, in proportion to the advance of hire.

People commonly are diſpoſed to ſet themſelves out to the beſt advantage; but, in this country, every one agrees to aſſign the firſt place for knowledge in farming to Miſs *Fraſer* of *Inverallochie*. Her brother, who reſides in London, has a leaſe of the farm of Knochall from Mr Udny of Udny, which is put entirely under her management. My expectations were highly

ly raiſed by the voice of fame, but I was diſappointed by the Lady's abſence. I had, however, the pleaſure of ſurveying her improvements; and, from the highly cultivated ſtate of every field, diſcovered not only her induſtry, but a ſuperior genius. Drilled turnip, bear with graſs-ſeeds, thriving exceedingly, fine paſturage, the beſt ſort of cows and young ſteers, in ſhort, every thing in perfection. She had indeed the advantage of muſcle ſhells from the ſhore in plenty, the uſe of which for manure ſhe knows perfectly. The ſtone fences are incomparably good. She has taken very great pains to rear thorn hedges near the ſhore, but without much ſucceſs. Farther from the ſea air they thrive perfectly well, and the ditches, lined up with ſtone, make an excellent fence. I met a wain deeply loaded with ſea ſhells drawn by four fine bullocks. They were trained to draw in harneſs, and I was charmed to ſee them take all the turns of the road, like the beſt trained horſes. In ſhort, this Lady is a miracle for farming. Her genius muſt be uncommon, to excel ſo eminently in a vocation that nature ſeems

ſeems to have confined to the male ſex. May ſhe long ſhine dignified in her ſphere, and, high ſpirited, like Elizabeth of England, ſurrender her independence to no man, however elevated in rank. Anxious for further information concerning the high improvement made upon this farm, I took the liberty of troubling Miſs Fraſer with ſome queries, to which ſhe honoured me with an anſwer, and which, as a valuable preſent to the public, I preſume to inſert it.

"The farm of Knockhall, belonging to Mr Udny of Udny, and rented by Mr Fraſer, anent which Mr Wight deſires information, contains 143 acres. This farm is ſituated in the moſt favourable climate that Aberdeenſhire can boaſt of. It has alſo the ſea for all ſort of conveyance by water, and in the vicinity of a fiſher village for dung, with Aberdeen, only ten miles diſtant, for a market for grain, &c.

"This farm was in the poſſeſſion of a common farmer until Mr Fraſer got it. It was then in many ſmall pieces of ground, full of ſtones, holes, and whin buſhes; he had

had it all brought into regular, but ſmall incloſures; 9 acres the largeſt. The fields have been manured, at the rate of 80 bolls of ſhell lime *per* acre; but the ridges being, as you may ſuppoſe, high, were to be levelled, and much labour and time neceſſary for that purpoſe; and not properly done, until the ſecond time theſe fields are ploughed. The ſoil, though in ſo ſmall a ſpace, varies much; ſuch as a blackiſh earth, bottomed with a whitiſh clay; part of it on a rock; the beſt of it on a reddiſh free clay; below a rich black earth. There is alſo a ſtrong yellow clay, with four or five inches of black earth above. The method of improving on this farm has been by turnips, after preparing the land by lime and muſcle dung from the fiſher town, which is to be had at a moderate price. The turnips are in drills four feet aſunder, and hand-hoed after the horſehoeing. I cannot aſcertain the weight *per* acre. After turnips, we have bear and clover;—bear again;—peaſe, and a dreſſing of 40 bolls of lime;—bear and graſs-ſeeds, and break up with oats. We intend to try wheat after the peaſe; but have not yet

done ſo; and, in this event, ſhall manure with the ſleech, or ſlimy mud, that the tide leaves, which agrees with a wheat crop, and which Mr Udny has many years ago had experience of.

"The only field that is yet in tolerable order, was laſt year in oats, and gave a return of twelve from one. It was Dutch oats, known by the name of Guelderland oats. Our quantity of graſs-ſeeds are ten pounds of red clover, five of white, with two buſhels of ryegraſs, *per* acre.

"There can be no doubt of the preference of oxen to horſes in working this farm; the ſaving is conſiderable, and the work equally well done. Four oxen and two horſes now work it; and the horſes in a ſhort time might be ſpared, ſince our oxen do every farm work, and could drive a load of grain to Aberdeen, which hitherto the horſes always have done. Six oxen for all could perform the work, and be kept as cheap as three horſes; beſides, one load of dung drawn by the oxen is equal to two by the horſes; and, to complete the advantage, they are fit for the butcher when paſt work.

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"We have the beſt ſort of the Northumberland cows; and I believe them to be as good a kind as any; but I have had no experience of any other. We keep no ſheep, they being deſtructive to hedges, and hedges adverſe to them. We once tried feeding cattle with turnips; but the profit was not ſuch as to induce perſeverance. We now either ſell what turnip we can ſpare, and to be eaten on the farm. But we keep what is ſufficient for our own cattle, particularly cows and ſteers or queys, by which method we have ſaved two years hay, and this year ſold turnip at L. 4 *per* acre; and have juſt now an offer of L. 19 for four acres, which being on ground ſubject to a blight, the turnips is the firſt ſafe crop it ever produced in Mr Fraſer's poſſeſſion. It is on the ſide of the river Ythan, and a high expoſure. The prevailing opinion, that trees will not grow on the ſea ſide, will, it is hoped, be confuted from the appearance of thoſe now tried at Knockhall. Hedge-rows, or even belts, may run many dangers; but 55 acres in one incloſure, of different kinds, different ages and ſizes, and in ſome meaſure

ſure different expoſures and ſoil, has every chance that induſtry and foreſight can beſtow; and this point is Mr Fraſer's favourite and zealous purſuit. The oaks from the acorn now begin to ſhow fine ſhoots, though laſt year was ſo dry, that every tree which was not nipped by the cold before the firſt days of May, was retarded for want of moiſture. You would ſee that all Mr Fraſer's farm is fenced by ſtone dikes and thorn hedges; the interior diviſions, by twenty feet of a ſtrip, planted, and a hedge and ditch on each ſide. Along the river-ſide a belt is taken of 60 feet, fenced to the field by a ditch of three feet deep, and a hedge towards the edge of the ditch. The land, in general, does not hold water; very little draining was neceſſary, and open drains have prevented that. The hedges, where they were properly planted, thrive well; ſome of them were too near the dike; and, to remedy this, another hedge, 18 inches within, has been planted ſince.

"N. B. We rear all our calves, and try to raiſe the ſize by nurſing them long and plentifully."

I proceeded toward Peterhead, through the pariſh of Crowden; the land in general good, and capable of high improvement. At *Auchinten* I was pleaſed with ſeveral little tenants, ſtruggling againſt poverty to improve their farms; here and there ſmall patches of turnip, of clover, and of ſummer fallow, a little fold for their cows, and a few bolls of lime thinly ſcattered. Theſe are indications of an improving ſpirit, which ought to be cheriſhed by the landlord. If treated tenderly, every farthing ſaved will be laid out upon the land, and the improvements in time will be conſiderable, ſo as to afford a reaſonable rent to the landlord, and a comfortable ſubſiſtence to the tenant.

John Gray, an enterpriſing farmer, has a leaſe of 300 acres for 24 or 25 years. It was a bold undertaking, being little better than in the ſtate of nature at his entry. As he could have no dung to begin with, his reliance was on lime, though it coſt him 2 s. 6 d. *per* boll, and upon folding his cattle on the infield. To the dung of the cattle in the fold he adds lime, and obtains

tains very good crops. By the help of ſtraw he is now gathering ſtable dung.

My road led me to a narrow pleaſant valley, well cultivated; turnip and clover as well managed, and as weighty a crop, as one would wiſh to ſee; fallow well dreſſed, ridges ſtraighted, and abundance of lime ready to be laid on; bear and oats weighty crops. The tenant, whoſe name is *Murray*, is a young man of great enterpriſe and induſtry. His farm conſiſts of 200 acres upon a nineteen years leaſe. What he has hitherto done is upon the infield, and the remainder of his leaſe will not enable him to draw much profit from the outfield, eſpecially as part of it is muiriſh. I admit that a nineteen years leaſe is perhaps more than ſufficient to many of our tenants who take up with the preſent ſtate of their land without ever dreaming of an improvement. But a man of induſtry cannot be too much encouraged; and when land is ſet to ſuch a man for improving it, a nineteen years leaſe is too ſhort.

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At *Ardeffy*, I met the tenant in a graſs field very well laid down; his name is *Thomas Johnſton*. The farm conſiſts but of 50 acres, rented at L. 15 Sterling, upon a leaſe of 24 years. The ſoil is excellent for turnip, which Mr Johnſton manages extremely well. He allows 45 bolls ſhell lime to the acre from Lord Elgin's lime-work, or from Sunderland at a very high price, as mentioned above, beſide carriage; and he gives dung over and above. This man muſt have a liberal mind, to beſtow ſo freely on his land, in a country where there is little notion of ſuch expence. Bear and graſs-ſeeds follow the turnip, ſix pounds red clover, three buſhels ryegraſs. To make a more weighty crop of hay, I adviſed him to uſe ten pounds red clover, five pounds white, four pounds ribwort, and ſix pecks ryegraſs. Paſture ſucceeds for four years, when the ground is broke up for oats, than which a better crop cannot be ſeen. Mr Johnſton has added to his farm a neat houſe and offices, all at his own expence. Beſide the above farm, Mr Johnſton poſſeſſes 300 acres of muir, for which he pays partly money, partly corn, poul-

poultry, butter, ſheep, eggs, and peats. This farm is managed in the following manner. A part of it is watered three years ſucceſſively, in a way common to many parts of Scotland. At the end of the third year it is broke up, and oats ſown in March on the winter furrow, and the ſame crop is repeated for two years more. The crops are ſurpriſingly good, owing ſurely to the watering. But doctors have not yet agreed by what means the watering produces ſuch ſalutary effects. On this farm 800 ſheep are kept; but they are little, lean, and not worth above 5 s. 6 d. *per* head. Smearing or ſalving is not known in Aberdeenſhire. The wool is coarſe, the fleece weighing not above 1½ pounds. But, as the wool is white, there is a ready demand for it. The ſheep are houſed in winter, merely for the ſake of dung. This example will ſhow how ignorant this country is about the management of ſheep. Here is a fair opportunity for gentlemen who have landed eſtates to increaſe their rents, by introducing a proper management of ſheep. Let them begin with introducing the method follow-

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ed in the ſouthern provinces of Scotland, to improve the breed, and to mend the paſture, which here is the worſt I ever ſaw. I know no means more effectual than paſturing with ſheep for raiſing the value of land.

Mr Johnſton, induſtrious throughout, has bred two of his daughters to the manufacture of white thread; and theſe young women deſerve praiſe, both for their ſkill and induſtry. How agreeable to ſee young women carrying on a neat clean manufacture which raiſes them above dependence, and is the beſt ſchool for learning activity to fit them for the management of a family when that happens to be their lot. I may ſafely add, that young women ſo employed, and whoſe characters are publicly known, have a better chance to be married, than thoſe who live more in obſcurity.

In the neighbourhood there is another Johnſton who has feued 300 acres of bare muir, and reared a houſe in the middle of it; a bold undertaking, which, however, may prove ſucceſsful, if the ſame boldneſs be carried on to the end.

The old caſtle of *Slains* ſtands near to the ſea ſhore, with much good ground round it. The late Earl was a ſkilful farmer, and took great pains to introduce an improving ſpirit among his tenants. His own farm retains viſible marks of his improving genius. But alas! his death ſtopt the progreſs, and was a loſs to his country, to his family, and to huſbandry.

The mineral water at *Peterhead* has been long in requeſt for ailments in the ſtomach, and in fact many find relief from it. People flocking there circulate money, and produce a market for proviſions, which is favourable to huſbandry. There is a harbour here, moſt commodiouſly ſituated for a ſhelter to ſhips in bad weather. The commiſſioners of the annexed eſtates, from a patriotic zeal for the public ſervice, have granted L. 500 Sterling yearly, for ſeven years, to be applied for improving the harbour, ſo as even to receive ſhips of conſiderable burden. If it ſhall be completed according to expectation, it will prove a great advantage to navigation, and be the means probably of ſaving many a life that otherwiſe would be loſt.

This

This town is enlarging, and yet not a manufacture but one, carried on by Kilgower, of coarſe woollen cloth. He is alſo concerned in a manufacture of the ſame kind at Nether Kilmundy, encouraged by Mr Garden of Troup. In this manufacture are conſumed yearly about 100 packs of Engliſh wool, ſorted and ſtapled there. It is a piteous caſe that this country cannot afford materials for its own manufactures; and yet, with the land well cultivated, I have no doubt that wool might be raiſed, not only for our own conſumpt, but to ſupply our neighbours.

Where trade can be carried on conveniently, adventurers will not long be wanting. The Arbuthnots, a Forbes, and others, very ſpirited men, enter deep into trade, particularly in the ſalmon and cod fiſhing. The river Ugie affords great quantities of ſalmon; but, being too late to pickle them for the London market, they are all ſalted for the French and Spaniſh markets. Cod caught on this coaſt, and dreſſed here, are highly eſteemed at London. This beneficial article commences in October, and continues till the firſt of February.

ary. All taken in that period are carried to London. All caught after, are ſalted and dried for inland ſale. But the enterpriſing merchants in this town confine themſelves not to the neighbouring ſea. As trade, manufacture, corn, graſs, wool, and horned cattle, have a mutual dependence on each other, this digreſſion will not be thought altogether out of rule. I now return to the province allotted me.

Sea weed is a beneficial manure, explained in former reports. It is cheap, too, being one of many favours beſtowed by Providence on the huſbandman. A ſtranger, in a coſt ſo extenſive, would ſuppoſe a great quantity of this manure; and yet, from Aberdeen till within three miles of Peterhead, there is none. From thence, indeed, northward, on all the coaſt, even beyond Banff, ſea weed comes aſhore in abundance. But often the beſt things are abuſed. I give the following inſtance. Five ſucceſſive crops of bear from the ſame field are often taken from the dependence they have on ſea weed. What profound ignorance! Is it not obvious that ſpreading the ſame ſea ware, and taking different crops in ſucceſſion, would do much better?

Sea

Sea weed is a manure for graſs, as well as for corn. If ſpread upon a paſture field after the firſt eating, or upon a hay field after the firſt crop, it will produce excellent foggage.

An eſtate belonging to the Merchant Maiden Hoſpital in Edinburgh, ſurrounds this town. It contains land naturally good, and capable of high improvement. It has lately been let on leaſes of 19 years, upon a riſe of rent from L. 257 to about L. 800. There is no obligation on the tenants to incloſe, but only, that, if they do incloſe, they ſhall, at the end of the leaſe, be entitled to 25 s. for every rood of ſtone wall four feet in height; for every rood of ſunk fence faced with ſtone, 20 s. and 3 d. for every ell of ditch and hedge; but, to obtain this premium, all muſt be in good order, at the expiration of the leaſe. I think this a moſt rational ſtipulation with regard to a proprietor who lives at a diſtance. He pays for nothing but what he ſees to be really exiſting, and what muſt neceſſarily raiſe the rent at the next ſet. More particular ſtipulations, with regard to the manner of cropping, liming, and

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ſuch like, are only for a proprietor at hand, who can ſee to the performance of the articles, and obtain the reparation from the tenant when he fails. It is indeed a loſs to a country in point of huſbandry improvements; and it is one of the manifold inconveniencies of great eſtates; but it muſt be ſubmitted to for want of a proper Agrarian law. The unhappy conſequences of open fields, with reſpect to the inhabitants of the town, is apparent, as incloſed graſs near the town draws at leaſt L. 3 Sterling *per* acre. Mr Thomas Arbuthnot, a merchant here, taking advantage of this defect of graſs, took a ſmall farm a mile from the town, incloſed and dreſſed it; he takes alternate crops of corn and graſs, and gets from the inhabitants from 50s. to L. 3 the acre for graſs to their cows. Mr William Forbes, another merchant in this town, by making great profit to himſelf, has alſo contributed to the convenience of the inhabitants. He poſſeſſes two incloſures near the town, originally of a mean ſoil, but has improved them greatly by cleaning, dreſſing, and dunging. His crops of turnip, cabbage, and

and potatoes, are good, and afford a good price where vegetables are rare. To theſe meliorating crops bear ſucceeds with graſs-ſeeds; and after a crop of hay, and a few years paſture, the ground is opened again for oats, &c. The profit he makes has encouraged many to follow his example, which in time will be a great bleſſing to the inhabitants, by affording them graſs for their cows, and vegetables for themſelves at a moderate rate.

William Sellars at *Scotſmill* has taken 782 acres of the hoſpital lands, about three miles from Peterhead. He is a cool, deliberate, thinking man, and provided with a good capital ſtock. Though he is now convinced that the rent is too high, yet he boldly puſhes on to make the moſt of a bad bargain; and I believe there is no man more capable to overcome the obſtructions that lie in his way. His crops are turnip, carefully dreſſed, bear, oats, peaſe, bear, and graſs-ſeeds, viz. 8 pounds red clover, 4 pounds white, 1½ buſhel rye-graſs; hay the firſt year, paſture 4 years, and then opens again for oats, turnip, &c.

I recommended a few additional pounds of red clover, and ſome ribwort. As Mr Sellars could not hope, in a ſhort time, to improve ſo large a farm, he prudently ſubſet parts of it, and has been at great pains to direct and to aſſiſt his ſubtenants. The low price of cattle this year has produced many diſaſters, one in particular to Mr Sellars, there being thrown into his hand by ſome of his ſubtenants no fewer than 160 acres, a very diſagreeable addition of toil to a man who had before too much of it. It is lucky, indeed, that lime can be got in the neighbourhood at 6½d. *per* boll powdered lime, 88 pints to the boll. As a conſiderable proportion of ſand belong to this lime, it is much inferior to the imported lime, but a greater quantity will make up the difference; and on clay land, in particular, it is preferable, as ſand of itſelf is a good manure for clay. In this great farm, there is no ſheep walk, nor proper paſture for breeding and rearing horned cattle. The beſt that Mr Sellars can make of the greateſt part of this extenſive farm, would be, firſt, to cultivate with the plough, to lime liberally, and ſow the

the graſs-ſeeds that are fit for nouriſhing better kinds of ſheep and horned cattle. After ſeveral years paſture, good crops of corn will not diſappoint him. I know of no method more certain for drawing money out of ſuch a farm.

When Mr Sellars took a leaſe of this farm, I doubt whether he had formed any accurate plan for making the moſt of it. Such foreſight in agriculture is not frequent in Scotland, and very rare in the northern parts. And this leads me to reflect on the good that may be done by a board of agriculture, were ſuch a board rightly eſtabliſhed *. Every farmer would be welcome to the board, and receive the beſt advice for conducting his affairs. What a bleſſing would this be for Scotland! As matters are at preſent, a farmer who is the moſt willing to receive advice, and the moſt capable to profit by it, is uncertain to whom he ſhould apply, and may be hurt by bad advice, as readily as benefited by good.

Mr Sellars has a farm in this neighbourhood from Mr Ferguſſon of Pitfour. At the old caſtle of Inverugie, it pleaſed me

* See Gentleman Farmer, p. 367.

to ſee his beans and peaſe in drills perfectly well conducted. The ſoil, indeed, is very good, eſpecially for graſs; and Mr Sellars had reaſon to exult when he ſhowed me his hay and paſture, which were exceedingly fine.

At no great diſtance from the former, a farm, belonging alſo to Mr Ferguſſon, is poſſeſſed by *William Fraſer*, who has the reputation of an expert farmer. The houſe and offices drew my attention, being ſuperior to any I had met with in that country in the poſſeſſion of a tenant. The farm is divided into regular fields, (an excellent ſheep walk on the banks of the river Ugie,) by heights and hollows well calculated for ſhelter. Seeing every appearance of good culture, I called for Mr Fraſer, but unluckily for me he was not at home.

In order to diſcover the ſtate of huſbandry in the interior parts, I left the ſhore, and directed my courſe to Kirktown of Longſide, and called upon *John Moir*, a tenant of Mr Ferguſſon's, who is much reſpected, both as a man and a farmer. His

His farm is kept in good order by a conſtant perſeverance in the modern huſbandry. He dreſſes the ground well for turnip, gives dung, and hoes diligently. The following crops are bear, clover, and oats, which finiſhes the rotation. Nothing can be better contrived for keeping the ground in good order. The turnip crop is beſtowed upon milk cows and young cattle. Plenty of milk is procured, a comfortable article for a family.

I glanced alſo at *Alexander Cumming*'s farm of 200 acres, rented at L. 39; but it is not all good land. What I ſaw of it might be made to carry heavy green crops and good graſs. Sixty bolls of lime are laid on the acre when dreſſed for turnip, or teathed by folding cattle on the ſward, and alſo upon the ſurface of graſs that has been paſtured ſome years. Hence it may be gathered, that the lime is cheap, and within a moderate diſtance. In all of theſe ways, the ſucceſs anſwers expectation.

At *Nether Kilmundy*, belonging to Mr *Garden* of *Troup*, good crops of bear are got

got by manuring the land with the refuſe of the woollen manufacture. One *Peerie* has done much to his farm on a liferent tack, though the uncertainty of life makes it a precarious holding, which a man of prudence will not riſk much upon.

Andrew Scot, alſo a tenant of Mr Ferguſſon's at *Yokiehill*, is an expert farmer, and keeps his land in good order. To avoid repetitions, I forbear mentioning the particulars, in which he agrees with other good farmers, and ſhall confine myſelf to his method of water-fatting. A gravelly ſoil, with a free bottom, that is fully ſwarded with graſs, he much approves of for watering; and he as much diſapproves of watering clay ſoil. From his long experience in this article, he has obſerved, that, if a plant he calls well-graſs, a dwarfiſh kind of ſprat, makes its appearance, it will be encouraged by ſummer watering, but that it is killed by watering in the winter. Upon any appearance of iron ore, known by tinging the water, give up watering. From general obſervations I proceed to particulars. Introduce water upon gravelly ground

ground in ſpring, and continue it the reſt of the year. The firſt three crops are oats, ſeed 14 pecks on the acre, which return about ſix bolls. The ground is then left to the hand of nature, which is bountiful, according to Mr Scot's account, as the very firſt year the ſurface is covered with white clover, trefoil, and a tender natural graſs. His practice is different in a coldiſh black kind of loamy ſoil upon a bottom that retains water. Before watering, the graſs ſhould be four years old. Divide the field into two equal parts. Water one of the parts the beginning of Auguſt, to remain for a month. Then direct the water to the other part; and ſo alternately for the ſpace of two years; by which means each part will be under water a full year. Let no four footed beaſt tread the field for a week at leaſt after the watering is left off. Open the ground in the end of Auguſt or firſt of September, and ſow oats in March, to be continued for three years. The product is about five bolls the acre. The reaſon for delaying watering till the graſs be four years old, is, that, to water it more early, eſpecially the firſt year, it encou-

encourages thiſtles and other noxious weeds. I have met with no other inſtance of water-fatting in this country but that of Johnſton's on the Earl of Errol's eſtate. They differ not much in their practice, only that there is more accuracy in that of Scot.

In every farm where attempts were made to improve upon the old method of agriculture, I expected to meet with good implements of huſbandry; yet every where in this country theſe implements are intolerably bad. As deep ploughing is in practice, they prefer their own heavy ill conſtructed club of a plough. It was too much to expect that they would jump at once to the chain plough; and therefore I recommended our reformed Scotch plough, which I know will anſwer every purpoſe better than any other plough I have yet ſeen. Once it was the practice in that country to work with oxen; the faſhion is altered to horſes. I am glad to find oxen becoming again faſhionable; but the yoke is inſiſted on as the beſt for drawing, and eaſieſt for the ox. Thus, in action, we invert the order of nature. Inſtead of beginning

ginning with fixing the principle, and then directing practice by it, we begin at practice directed by cuſtom, and then go back to infer principles from the practice; by which cuſtom governs all. It is extremely ſimple, and equally certain, that, in the ſhoulders, whether of a horſe or of an ox, his ſtrength lies, and that they make the proper ſtay or prop to draw by; not to mention, that the yoke makes an ox keep down his head and neck, to put them in the line of the draught, which neceſſarily retards his motion.

This opens an inviting ſcene for the landlord to improve his eſtate with very little expence, and that is, to introduce among his tenants good ploughs, good harrows, and good carts. The effectual method would be, to propoſe, as a premium for the beſt crops of turnip, of hay, or of corn, or of ſummer fallow, a few ploughs, or harrows, or carts of the beſt conſtruction. A very ſmall number of theſe ſcattered through an eſtate, would ſoon make every one fond of them. And this leads me to Mr *Fergusſon* of *Pitfour*, who would benefit

benefit more by this plan than any other gentleman round him. He is a very popular landlord; and I am confident that he needs but a hint, not only to make himſelf more popular, by executing this plan, but to improve his eſtate greatly by it. One evident conſequence will immediately follow. A man who has been uſed to bad implements, will find ſo much convenience and ſucceſs in uſing the beſt ſort, as to raiſe his ſpirits and his thoughts to every poſſible improvement. I have great hopes of Mr Fergusſon; for, though his buſineſs in Edinburgh prevents him from entering deep into the practice of huſbandry, yet it prevents him not from giving every ſort of encouragement to his tenants. Senſible that they are neither wealthy nor expert, he expects not high rents at firſt, but leads them on gradually to do better and better. To tenants in ſo low a ſtate, a leaſe for 19 years is rather too much. He therefore begins with leaſes of 11 years, adding the life of the poſſeſſor. Therefore, among the improvers, Mr Fergusſon's tenants are the moſt numerous.

merous. I omitted to name John Watſon, who fallowed 14 acres this year.

The diſcovery of two lime-ſtone rocks has luckily fallen into Mr Fergusſon's hands, being diſpoſed to make the moſt of them for the benefit of his tenants. The ſtone is burnt with peat in clamp or ſow-kilns, and ſold to the tenants for 6½ d. *per* boll. But this I conſider as a beginning only; for ſurely this gentleman's induſtry muſt lead him to erect draw-kilns for extending the ſale farther, and benefiting all around him. He has incloſed above 700 acres in three diviſions, planted the whole with Scotch fir, and interſperſed one diviſion with other trees, intending to do the ſame with the other diviſions. The trees that thrive the beſt are beech, aſh, plain-tree, Scotch elm, and oak. Firs thrive the worſt, and therefore pitch fir and larix are planted in place of them. From Pitfour, Strichen, &c. to the coaſt, trees thrive but ill; yet, by the ſhelter of Scotch fir and ſpruce fir planted thick, they will prove good trees at laſt; as an evidence of which, all the moſſes to the ſea-ſhore are filled with large trees. As ſucceſs in planting

trees and quicks for hedges greatly depends on the plants raiſed from the ſeed in a lively ſoil and kindred climate, Mr Fergusſon has made a nurſery of ten acres, wherein his plants and quicks are raiſed from the ſeed. In removing the plants from the ſeed-bed to the nurſery, he plants them in lines ſo wide as to clean the ground with a ſmall plough between the rows, and with the hand along the rows. Thus the ground being kept clean of weeds, the roots grow ſtrong for ſupporting a vigorous ſtem. Such plants will ſurely thrive better than thoſe crowded together, deprived of ventilation.

Mr Fergusſon incloſed by a ſtone wall 80 acres of tolerable ſoil, after it had lain 10 years in graſs. Seventy bolls of powdered lime were ſpread on each acre, which has produced ſo much graſs as to make Mr Fergusſon forbear opening the ground for graſs-ſeeds. But, as this incloſure is full of bad plants, the ſurface rough and unequal, it will ultimately give no ſatisfaction. It would have done much better to deſtroy every weed by a hearty fallow, and then to have mixed the lime with a clean

pulveriſed

pulveriſed ſoil, which would have produced excellent crops.

As,about 15 years ago, fallow, turnip, and graſs-ſeeds, were utterly unknown in that part of the country, a ſociety was inſtituted for promoting agriculture, of which the good Earl of Errol was the chief promoter; and it was that ſociety which gave the firſt notion of improving agriculture in that neighbourhood.

As I was going forward toward *Old-deer*, I obſerved, at a diſtance, the appearance of great improvements, incloſing with ſtone walls, hedges, plantations, turnip, clover, &c. a new village raiſed, all indicating a ſound head and able hands. I was told that theſe were the operations of Mr Burnet, an eminent merchant in Aberdeen; and the place is called New Crichie, or Stewartfield. But finding that he was not there, I miſſed the opportunity of learning from himſelf the plan of his operations.

At *Montcoffer*, near Old-deer, Mr *Ruſſel* the proprietor has great reputation from what he has done, and is ſtill doing, to reclaim

claim much waſte land. The ſoil, in general, is a haſely loam; the infield, when turned up, is of a yellow hue; but, by culture and frequent dunging, is now a good black mould. The outfield partakes of the ſame nature and colour, and moſt part of the whole has a dry bottom. The infield is improved by taking off every large ſtone, and employing them in making ſubſtantial ſtone incloſures. The ground is ſummer fallowed, and limed and dunged for turnip in drills or broadcaſt, as the ſtate of the ſoil required. The turnip I ſaw might do honour to any country, as alſo his cabbage and other crops. I avoid particulars on this branch, but ſhall give a full view of Mr Ruſſel's improvements on the outfield, which will be a good example for imitation. Earth fences were tried at firſt for incloſing; but theſe being found inſufficient, ſtone fences are reared in their place. But, in ſome of theſe, there is more frugality than profit, I mean where the earth fences are lined on one ſide with ſtone. When the earth moulders away, or is broke down by horned cattle, the ſtone lining muſt fall of courſe. When

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an undertaker is employed, he raiſes the ſtones, carts them off, and builds the dike from 12 d. to 14 d. the ell, and 7 d. for a faced dike, implements being furniſhed by the proprietor, and his horſes maintained on the graſs of the field while the work is going on. This method is commodious, and ſaves attendance.

The ground being prepared for admitting the plough, it is broken up, and lies till next year, when a thorough fallow is given, which, by frequent breaking and harrowing, reduces the ſoil completely. As lime abounds here, Mr Ruſſel gives to an acre from 90 to 110 bolls powdered lime, which is laid on the ground immediately before ſeed furrowing after harveſt. It is frequently delayed till the ſpring, when the oats or bear is to be ſown, and is harrowed in with the ſeed, which Mr Ruſſel prefers, if the ground be very dry. Two ſucceſſive crops of oats are taken, and three if the ground happens not to be perfectly pulveriſed. Sometimes peaſe are taken before the third crop of oats. Graſs-ſeeds are ſown with the laſt crop of oats, which bring on a cloſe ſward of graſs, and add

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ſo much to the improved land. After paſturing four years, the field is opened again by a ſingle ploughing, after lime is laid on the ſward. The crop of oats that follow is good, and ſometimes a ſecond crop of the ſame grain. Then horſe-hoed turnip with dung in the rows; next bear or barley. The barley thrives well. Fourteen pecks on the acre produced laſt year 9½ bolls, 34 pints making a firlot Aberdeen meaſure. With the barley are ſown ten pounds red clover, five white, two and a half buſhels ryegraſs. Hay is taken two years, 250 ſtone from the acre; then ſurrendered to paſture for four years. This is an approved mode of huſbandry. I took the liberty, however, to adviſe this ſagacious improver to withdraw 1½ buſhels of ryegraſs, and to add four or five pounds of ribwort, by which both hay and paſture will be better. A gentleman who deals in improving bad land, and knows the trouble and expence of it, is commonly willing to encourage his tenants by a long leaſe. This gentleman gives leaſes for 19 years, adding the life of any of the tenants ſons that ſhall be named to him.

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The preſent rents, before improvement, is from five to ſix ſhillings infield land, and from two to three outfield. His purpoſe is, to let to tenants his lands when improved; for he reckons it is not the landlord's intereſt to be his own tenant. The great difficulty he complains of is, to keep his tenants cloſe to their engagements, who are apt to neglect even what are contrived for their own benefit. But this is the caſe of every landlord whoſe tenants are not thoroughly enlightened. A genteel houſe and neat offices belonging to Mr Ruſſel, ſurrounded with a plantation of thriving young trees on the ſide of the public road, give a chearfulneſs to the traveller as he paſſes. The farming implements are good, the ploughs in particular. One he got from Mr Crichton at Edinburgh, and the reſt are made after that model. It is hoped Mr Ruſſel will be copied by his neighbours, as the farming inſtruments in that part of the country are wretched. Mr Ruſſel's practice is beginning to have an influence. In ſeveral neighbouring farms there are ſmall ſpots of clover, turnip, and graſs.

graſs. Water-fatting is alſo carried on much in the manner above deſcribed.

Any improved fields near Old-deer let from 16 s. 8 d. to 25 s. *per* acre; and yet Old-deer is but a mean village. Such is the efficacy of population. My way to Mr *Fraſer* of *Strichen* was through a muir, no part of which is cultivated; but the road is indeed good. That part of Mr Fraſer's eſtate which he himſelf farms, conſiſts of 300 acres arable within belts of planting. As theſe belts come faſt on, they will ſoon prevent a free ventilation of air, which is hurtful to corn, to graſs, and to the paſturing cattle.

As agriculture has been long carried on here by Mr Fraſer, and by his father the late Lord Strichen, and vigorous improving attempts, it would take up too much room to enter into every particular. I ſhall only ſhortly obſerve, that turnip and kail drilled, as well as broadcaſt, hoed with plough and hand, ſucceed well, and an extraordinary crop of wheat. But I cannot forbear to obſerve, that the ſoil of this farm is too light for a regular rotation of

wheat crops. A very good crop at a time may be got from a gravelly or light ſoil; but clay is the only ſoil that will admit wheat as one of the crops in a narrow rotation. Rough wet ground made dry by upper and under drains, is now to be broken up, in order to ſweeten and enrich the ſoil by fallow, lime, and compoſt dunghills. After a few crops, it is to be laid down again with graſs-ſeeds, which will be both ornamental and profitable. Great care is taken to raiſe large dunghills, by ſcraping together every ſubſtance that will putrify.

Oxen are here employed upon every ſort of huſbandry work, ploughing, carting, harrowing, &c. harnaſſed like horſes; and ſo much are oxen depended on, that but two horſes are kept on this extenſive farm. Mr Fraſer's overſeer, who appears to be ſober and intelligent, told me of 32 bolls of meal, equal to 256 ſtone Amſterdam, in a waggon, were drawn by four oxen from Strichen to Fraſerſburgh, nine miles; the road is indeed good. This man informed me of another inſtance. The waggon full of ſand, weighing 288 Am-

ſterdam ſtone, was drawn up hill by the ſame oxen, in order to mix with lime, and that this was done with eaſe. I gladly lay hold of every opportunity to recommend the uſe of oxen to my brethren; a frugal plan for themſelves, and for the nation in general. Mr Fraſer's oxen are always ſhod in the fore feet. The Rothram plough is that uſed here, and the farm is ſtored with all the different implements of huſbandry of the beſt conſtruction.

Mr Fraſer has an extenſive hill farm for ſheep and black cattle, beſides the large ſheep walk connected with his home farm; and I willingly enter into particulars, becauſe the management of ſheep is little known in this country. When the overſeer mentioned was brought from England to Strichen, the ewes on the farm carried a very light fleece, not exceeding a pound and a half, and many of them, loſing that little, were naked. He was accuſtomed to ſmearing, although that part of Northumberland from whence he came is warm, dry, and good paſture. He imputed, therefore, to the want of ſmearing, the loſs of wool, and the tenderneſs of the ſheep,

ſheep, many of them dying in February and March. He therefore entered into a courſe of ſmearing, and from that time the wool has been preſerved, and few or none of the ſheep die. The ſalve is 8 pounds butter, 2 pounds tallow, mixed with a pint of tar, which ſmears from 36 to 40 ewes. A better ſort of ewes were purchaſed, the price 7 s. and ſome ewe lambs at 4 s. for the hill farm, and thrive very well. To improve his flock ſtill further, Mr Fraſer has purchaſed a ram from Mr Hepburn of Clerkington, at three guineas, half blood, Bakewell kind. This ram has been kept hitherto on the low paſture in winter, and the lambs produced from him are exceeding good. Mr Fraſer has purchaſed another ram at 55 s. from George Logan, a famous farmer in the Merſe, carrying a large fleece of long wool, weighing 15 pounds Engliſh; and, to complete his improvement, he has alſo purchaſed ſome large ewes, at a guinea a head, bred at Ayton in the ſame county. Theſe ſheep are alſo ſmeared, though they paſture on warm well ſheltered fields, where the graſs is rich. I was aſſured by the overſeer, that the

the ſmall ewes, as now ſmeared, yield a third more of clean wool, and of a quality better than formerly *. I lay hold of this opportunity to repeat an inſtruction mentioned in my former ſurveys, to keep always ſeparate the ſheep that carry long wool, from thoſe that carry the ſhort clothing wool; for, by their mixture, the wool will be inferior to either of the kinds. By neglecting this rule, many improvers of ſheep have blundered at the firſt outſetting †.

I have here got into a tract abounding with gentlemen improvers. My time will not permit me to enter into particulars; and, if I did, it would be but a dull repetition of plans frequently mentioned. I muſt therefore be content with their names, with this eulogium, that they are all patriots of the true breed, that is, men who combine their own intereſt with that of their country, and promote both with all their vigour; very different from the pretended patriots at the other end of the iſland, who clog the wheels of government, while their only view is to ſhare among them-

* See vol. 2. p. 485. † See vol. 2. p. 487.

themſelves the loaves and fiſhes. Mr *Gordon*'s incloſures and growing corns do him honour. The reſidence of Mr *Ogilvie* of *Auchiries* bears marks of an early improvement; old incloſures, old graſs, and old trees. Theſe ſhow that he has not been idle in his youth; and his preſent method of cultivating his fields ſhows the ſkill he has acquired in riper years. His chief care now is to initiate his ſon in the practice of good huſbandry, who fled from Carolina on account of the rebellion. The young man being ſenſible and full of ſpirit, I hope great things from him in the agriculture line. The houſe and offices belonging to Mr *Fraſer* of *Memſie* are genteel modern buildings. The garden is neat. The ground around it, originally poor, is made ſmooth and verdant by good culture. The whole being in ſight from the public road, is ornamental to the country. Here is a hedge of whins on the top of an earth bank, the beſt I ever ſaw. The land at a little diſtance from the houſe is excellent. The tenant who poſſeſſes it is doing well. According to public report, this gentleman's father, at his entry to the land round the houſe,

houſe, including that now mentioned in poſſeſſion of a tenant, found the whole rented at 600 merks Scots, or L. 33 : 6 : 8 Sterling. By his own improvements, and by judicious leaſes to proper tenants, it is raiſed to a ſolid rent of 200 guineas. The preſent Mr Fraſer poſſeſſes conſiderable knowledge in farming, and hopes, when the preſent leaſe is at an end, to raiſe the rent of that farm ſtill higher. Mr Fraſer at Kirkton, a trader in victual, and an improving farmer, has done wonders on a little farm he leaſes from Lord Salton. Some parts of it lying low and wet, much trouble and expence it has coſt Mr Fraſer to drain it; but it cannot be made thoroughly dry, as there is very little level. The ridges are levelled and ſtraighted at no inconſiderable expence; an operation I would adviſe no man to undertake under a leaſe of three nineteen years. Much good earth having been buried in levelling, he has taken care to make up that loſs by plenty of dung. The whole farm is now in good order, and the turnip, clover, &c. are all full crops; as alſo is the Lincoln barley, which was introduced by him into

that

that part of the country. A better ſecond growth of clover I have not ſeen this year, nor of paſture any year. I cannot but regret that ſo active an improver ſhould be confined to 40 or 50 acres. With a good ſtock, he would make a figure upon five times that quantity.

Lord *Salton*'s eſtate at *Philorth*, in the diſtrict of Buchan, is a fine tract of land along the ſea-ſhore, near to the town of Fraſerſburgh, abounding with ſea ſhells and ſea weed, a deſirable ſubject for the higheſt improvements. The houſehold farm is under the direction of Mr Fraſer, my Lord's eldeſt ſon, and is well directed. His tenants cannot follow a better pattern. On my approach to the place, I was highly pleaſed to ſee clover, Lincoln barley, wheat, peaſe, oats, all of them luxuriant crops. I was led to a field of turnip in drills three feet wide, dunged in the rows. I wiſh not for a better crop. The ground in general is clay, and when poached in the winter by carrying off the turnip, it is reſtored to its trim by three ploughings in the ſpring, which prepares it for Lincoln barley;

barley; ten pecks to an acre produce about eight bolls. With the barley is ſown twelve pounds red clover, eight pounds white, and two and one half buſhels rye-graſs. Hay is taken two years, from 100 ſtones to 300 ſtones *per* acre; for, when clay ſoil meets with a good ſeaſon, and is properly cultivated, it yields more hay than any other ſoil. After two years paſture, the field is broken up for oats or wheat, one furrow only. Thirteen or fourteen pecks of oats are ſown upon an acre, and one boll of wheat. This is more wheat than ordinary for ſeed; but the nipping froſt winds in ſpring from eaſt to north, make part of the wheat periſh. The next crop is barley with dung; third crop oats, which ends the rotation, beginning again with turnip.

I was ſo well pleaſed with this young gentleman for his attention to huſbandry, that I could not forbear to offer an obſervation or two. Firſt, the paſturing ſhould be continued a year or two longer. Second, barley after wheat is generally allowed to be bad huſbandry, particularly on clay ſoil, and the crop is extremely precarious. Third,

turnip

turnip on clay expoſes to poaching; and hence a neceſſity of three ploughings in the ſpring for reſtoring tilth. Turnip ſhould never be raiſed but on light dry ground, which is meliorated by padling and treading on it. Therefore, inſtead of turnip, ſow peaſe, beans, or both, with dung or ſea-weed; and if the ground be foul, drill and horſe hoe. This makes a fine preparation for barley, and ſecures a crop. Oats follow, which muſt alſo be good. Reſtore the ground by a thorough fallow in ſummer, and take wheat with dung.

Sea-ſhells, about 200 cart load for an acre, anſwer well upon the ſward of ſtrong clay. Oats the firſt crop, and ſo forth as before. The return is from ſeven to ten bolls *per* acre. Sea-weed for the barley anſwers well.

Oxen are here uſed for every purpoſe; but for the plough never under ſix, ſometimes a greater number. The ſtrength of oxen ſeems to be unknown here. The old Scotch plough is indeed uſed, which in this clay ſoil, without ſtones, is inexcuſable.

Here are many old trees, and ſome lately planted, that afford great ſhelter from the northern blaſts, a ſtriking inſtance of which occurred this year. Though almoſt every where elſe fruit was blaſted by nipping winds in the beginning of May, not a tree in the large garden of Philorth but was loaded with fruit, gooſberries, and currans, not expected. In this garden a thriving aſh, as thick as a man's thigh, is growing out of a guigne tree; and yet the guigne tree continues in vigour.

Fraſerſburgh is a town of no great extent, nor of much commerce, though the port be tolerable, and the country about full of grain. But it is not without adventurers in agriculture. Dr Findlay led the way of incloſing here. His ſucceſs rouſed a ſpirit in others to follow his example; and we meet with many fields fenced round by ſtone walls or quicks. He has tried beans in drills, and turnip in the intervals. But, when I ſurveyed the field, the beans were ſo far advanced, that the turnip muſt be choaked. But, what is ſtill worſe, peaſe ſown with the beans were falling down, and ſome laid quite flat, ſo

as

as to hide the turnip. The Doctor, a ſenſible and obſerving man, will I believe avoid this error for the future. Mr Kilgour a merchant, had a field of turnip that ſeemed to have been well dreſſed; but they were too thick, which ſtraitened the roots, and enlarged the leaves. His other crops were good. There is no better land any where than at Fraſerſburgh. I only regret that the adventurers in huſbandry are not more numerous.

It hurts me to find many gentlemen negligent of their own intereſt, who yet are qualified for making vigorous exertions in huſbandry. Mr *Cummin* of *Pittoulie* cannot be ranked in that claſs, becauſe he has made ſome exertions, but not ſo vigorous or extenſive as to entitle him to be a capital farmer. His operations have been confined to a few incloſures round his houſe, merely for the convenience of living. So far he has ſucceeded, by procuring good corn, good hay, and good paſture, which are very comfortable neighbours in a remote corner. When he ſucceeded ſo far, what excuſe can he have for ſtopping ſhort, and depriving his family

and

and his country of rich returns, which improved land can produce? It is true that he encourages his tenants to attempt improvements; and they accordingly are creeping forward from one little field to another; and improvements among them are now more common than ten years ago. I regret this gentleman's indolence the more, conſidering the vaſt banks of ſhells treaſured up for him by the ſea, a rich manure for every ſoil, particularly for clay and muir, with the laſt of which this country abounds. But why do not the tenants make uſe of this manure? Their poverty, their weak horſes and ſmall ill conſtructed carts, are indeed much againſt their doing ſo. In their preſent ſtate, no dunghill is raiſed of any tolerable ſize; their mean crops yield little fodder; their horſes, cows, and winterers are ſtarved. I pitied theſe poor tenants, who are willing to do, had they it in their power. I have met many ſamples of the picture I have drawn. I have ſeen a long train of ſmall carts, the bottom and ſides done with ſpars for lightneſs, with ropes twiſted about the ſpars for holding in peats or ſhells, as much as a feeble horſe is able

to

to drag along, and a man for every cart. Reflecting on the burdens of ſand carried by women on their backs to Edinburgh three or four miles, I am certain that the load of the cart was leſs than what was carried by a woman. Alas! that the poverty of theſe people ſhould render their induſtry ſo fruitleſs. A hundred and eighty bolls of ſhells is reckoned neceſſary to be laid on an acre. How difficult a taſk muſt it be for theſe poor people, three or four miles from the ſhore, to manure a ſingle acre! and yet enterpriſe is not altogether wanting among them. Andrew Cheſſer made a comparative trial of ſhells, ſea-weed, and a compound of dung and earth, upun muir. I viewed the preſent crop, which is oats. That where the ſhells were laid was viſibly better than the others. And he aſſured me it was the ſame laſt year.

As the rents in this country have of late riſen conſiderably, without any improvement of the land, it was natural for me to conjecture that the high price of corn and cattle was the cauſe. It may be ſo in part; but Mr Cummin ſuggeſted to me another cauſe

cauſe more effectual. In former times, the culture of land being little known, it bore a low value. The country, at the ſame time, being ill peopled, the farms were large, though the rents were low. This produced a very unhappy effect. The more induſtrious the tenant was, the leſs was his ſucceſs; for, by his efforts to bring all under labour, nothing was done to purpoſe. This being at laſt apparent, the landlord, in giving a new leaſe, confined the tenant to that quantity of land which he could manage to purpoſe. The old rent was kept up, the tenant made more profit, and here was land reſerved for a new tenant.

At *Pitſligo*, on a high ſtony ground, Mr *Garden* of *Troup* is attempting an expenſive improvement. The ſtones are as numerous, and as large as any in the precincts of Aberdeen; and theſe he employs in fencing the ground with high ſtone walls. The ground is covered at leaſt ſix inches deep with ſhells and ſea-weed, carried up hill from the ſhore for two miles. No man is more ſkilful than Mr Garden in huſbandry

huſbandry matters; and yet, if I might venture a doubt, I ſhould think it a more promiſing and more frugal method to begin with a much ſmaller quantity, perhaps the third part, which I am apt to believe might be ſufficient. But if not ſo, it would be but adding afterwards an additional quantity.

I proceeded toward Banff by the way of Troup. At *Coberty*, I obſerved ſeveral ſtacks of corn of the former crop, a rarity indeed, and the ſingle inſtance of the kind. Mr *Gamack*, the tenant, muſt have great merit. His incloſures are fenced with ſtone dikes, the ridges ſtraighted, and neatly laid down. Every corn field appeared well, and paſture in abundance, another rarity in this country. But what of all differed moſt from the common practice, was horſes and horned cattle paſturing at large in incloſed ground. Teathering horſes is the only thing to be met with in this country, even upon clover fit to be cut for green food. His dwelling-houſe and offices too correſponded to the ſpirit of his other operations. I declare him a prodigy.

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He ought to hold a ſchool for all the farmers in the neighbourhood, gentlemen and others. I could not refrain from writing to him on the ſubject of his improvements in huſbandry; he favoured me with the following letters in anſwer to my queries; they contain ſome curious information.

SIR, *Coberty*, *March* 16. 1780.

"At your deſire I ſhall, by marking the treatment of two or three fields of my farm, inform you of the whole proceſs of management by which I have improved it. But I am afraid you will find nothing in it that will be inſtructing.

"I have portioned out my farm, of 168 acres, into incloſures of convenient ſize, and each as nearly of the ſame ſoil as poſſible. Experience has taught me the advantage of keeping as large a ſtock of horned cattle, at leaſt, as the produce of my own farm will maintain. The manure they yield me I conſider as the fundamental baſis of the improvement of ſoil; and accordingly I ſpare no pains in procuring it. A maxim which, I truſt, has benefited me

me more than any other, except *ſelf-attendance*.

"*A field of* 16 *acres.* A year before breaking up of this, which we call outfield, and which would have been fully valued at 5 s. an acre, I prepared dunghills; a compoſt of dung and mould of the field. Theſe I air, or turn over twice, adding a new mixture of dung at each turning. Betwixt July and September, the field is limed at the rate of 80 bolls *per* acre; and then the dunghills are put out, which I order ſo, that it gets a good coat of it. This cauſes an immediate vegetation, and, in a favourable ſeaſon, I reap four returns.

"As ſoon as poſſible after the crop has been taken off the ground, I lay on another manure, which a large hillock on my farm ſupplies; and I have always an abundance of it prepared for every crop after ley. The nature of it I am not thoroughly acquainted with, but its effects are ſurpriſing; I value it as the miſer does his gold. It is a gravel of a grayiſh hue, and its effects bear the neareſt reſemblance to marl; and though it cannot be the ſole

enricher, I am inclined to credit it with a part; for, in the particles of this gravel, if not marl, I diſcover a ſubſtance exceedingly ſimilar. It had been a repoſitory of ſlaughtered Danes, and it was reckoned ſacrilege to touch it, till either whim, or chance, or, if you will, an itch after experiment, led me to make a trial of it; a trial which, I confeſs, I have never repented; it is equally beneficial to every ſoil on my whole farm. I lay on as plentiful a coat as I did of the other upon the ley, which I cover as exactly as poſſible by a ploughing; not a clean ploughing, but ribbing or caſting two furrows together upon firm land. About the middle of April I plough it pretty deep and narrow; ſow it with barley, and never fail to reap ten returns. The third year I take a crop of oats, and have the tenth return. The fourth, I dung for a turnip crop, which being kept thoroughly clean, ſerves all the purpoſes of a fallow; and the fifth year I ſow it out in graſs-ſeeds, ten pounds red, ſix pounds white clover, and two buſhels ryegraſs, *per* acre. I mow it for hay, ſometimes one year, ſometimes two; always

ways paſturing it other two at leaſt. However incredible it may appear, it is not the leſs true, that now it will maintain as many cows as, before I dreſſed it, it would have done ſheep.

A very coarſe marſh, on clay bottom, 4 acres. This improvement I began with draining, when it was not worth ſixpence an acre. I cut a ditch through the middle of the marſh, ſix feet by five; which depth, with the natural advantage of the ground, afforded a ſufficient deſcent to the whole field. From this main one, I cut a convenient number of croſs drains, of three or four feet depth, and at the top as many wide. Theſe I filled, within a little of the brim, at random, with field ſtones, walling ten feet of each from the main drain; and, laſtly, I covered them all over with mould. The effects were highly beneficial, and amply rewarded my labour and coſt. The manure I uſed for this field was a ſea ſand, full of a ſubſtance like pounded ſhells. It has been moſt ſucceſsfully introduced by Mr Garden of Troup, much in the nature of lime, and where the due proportion is laid on, as laſting in its effects. Having

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ſanded it at the rate of 160 bolls *per* acre, I took two poor oat crops off it; they might have been better, had I allowed the draining a longer time to operate in killing the ſwampy productions. Third year, I gave it a good coat of dung, mixed with the mould of a different ſoil, and had an excellent crop of turnip. Fourth year, I ſowed in it 16 lib. red clover, one buſhel ryegraſs; reaped better than nine returns of barley, and had moſt excellent crops of graſs.

"*A field of* 7 *acres.* It being not many years ſince I entered to my farm, this is the only field which I have broken up after having put it into a ſtate of culture. I gave it a coat of the forementioned treaſure of gravel; not ſo thick as formerly, the ſoil being naturally generous. I ſhall ſay nothing more of the produce, but that it was incomparably greater than any I have ever reaped before.

"I fallow little, or none at all. I prefer the turnip, and other meliorating crops, which, when kept clean by frequent hoeings, holds the ſurface always in a ſtate of pulverization; and theſe, with the clover crops,

crops, I find moſt to my advantage. The ſoil is light, and eaſily cleaned, as hitherto quicken or couch-graſs has not abounded, nor other weeds that ſpring from parts of their roots.

"In the laſt mentioned field, I deſign next year to ſow peaſe; the third, I will dung for a turnip crop; the fourth year I will ſow it out with graſs-ſeeds, 16 lib. red clover, and 3 buſhels ryegraſs; and though I will never take above four crops, I may vary them as prudence and experience ſhall direct me."

SIR, *Coberty, Auguſt* 29. 1780.

"I am much bound to you for the kindneſs of your laſt letter. The judicious remarks you ſtate in it deſerve my beſt attention. The following is the beſt reply I can make to your queries; and, for your ſatisfaction, I will ſend a ſample of the contents of the hillock you inquire ſo particularly about. An opportunity offered lately, by a gentleman going from hence to Edinburgh; but, as I heard of your being from home, I deferred it, leſt the ſpecimen ſhould have fallen by, and not gone

gone to hand. I have now ſent it herewith.

"Anſwer to the 1ſt query. The dunghill, after the ſecond turning, is a compoſt of three equal parts; one whereof is mould of the field, one the gravel of the hillock, which I deſcribed in my laſt, and one of byre and ſtable dung.

"2. I lime at 80 bolls *per* acre, and it is powdered lime. The compoſt dung is made up of equal parts, one the mould from the field that is to be manured, the other of dung from the ſtable yard, and the other is of the hillock I mentioned to you in my former letter. I am ſorry my accuracy does not enable me to tell you to a nearneſs the quantity of this compoſt put upon an acre. But, in general, I always cover the field ſo as it marks itſelf fully.

"3. When I called the hillock which ſupplies me with manure, 'a repoſitory of ſlaughtered Danes,' I alluded to its having been a burial-place after ſome of their ſkirmiſhes, as they went along the coaſt-ſide of Buchan, before their final expulſion. And now you will underſtand what was meant by the ſacrilege of touching it; which

which I ſtill aſſert I am free from, as I put the higheſt value upon their *aſhes*, and, with the utmoſt veneration, bury their bones, ſome of which, ſuch as legs and thigh-bones, I now and then fall in with.

"My turnip I ſow broadcaſt, and hand-hoe them; but mean to try the horſe-hoe hereafter."

SIR, *Coberty, Auguſt* 17. 1781.

"I had the pleaſure of your kind favour of the 15th January, for which you have my beſt thanks. It would have been acknowledged long ago, but that a bad ſtate of health hindered till now.

"I am much pleaſed with the accounts of your examination of the ſample of the manure I ſent you laſt ſummer. The calcareous earth, ſhells, and fertile ſand you find it compoſed of, would of themſelves ſeverally make rich manures; and I make no doubt but they acquire a new excellence in the compound. But on this ſubject I cannot ſpeak common ſenſe, as I know nothing of it myſelf, nor have I acceſs to any body who does.

"There

"There is not the remoteſt probability that the ſea could ever have conveyed any of theſe ingredients here. Our diſtance, our elevation above the level, and the great height of the rocks on the ſea-ſide, leave not a doubt about this. But you have another ingenious conjecture to ſupport your belief that the ſhelly part is from the ſea, which I am very much inclined to adopt, viz. that they might carry ſand from the ſhore, which is only diſtant two Engliſh miles. Why they ſhould have preferred a bed of ſand to Coberty mould, I cannot aſſign to you any reaſon for it; but its effects on my grounds ſtrongly corroborate what you ſuggeſt in your letter concerning the ſhelly ſand being carried from the ſhore. When I lay it on, it is in large quantities, perhaps as much again as if it were dung of horſes and cows or oxen; but then it is far more durable, and in this exactly reſembles the effects of our ſhelly ſea ſand, that, of three good crops, the third is always the beſt.

"The hillock is not natural, but artificial; and it is beyond a doubt with me, that it was raiſed over the bodies of the

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ſlain after ſome battle or another; and the firſt of thoſe ancient heroes I had the honour of meeting with, I ſuppoſe to have been a great chief in his day, as his ſurvivers had diſtinguiſhed him with a fine coffin of ſix neat large well joined ſtones, which had preſerved his bones and aſhes well together. The hillock is raiſed in the middle of a little valley, about 130 paces round the baſe, and about 24 feet high. It conſiſts of a ſtratum of mixed earth, (whatever kind it be) and a layer of large field ſtones alternately. And it is only this artificial part of the earth that has the ſingular effects as a manure; for, whenever I get below the baſe of the hillock, it is little or nothing preferable to common mould; and I can plainly diſcern that, whatever ſort of metamorphoſis the earth in the hill has undergone, it has no reſemblance to the natural ſoil, nor to any that I ever ſaw. When dry, it is crumbly, as you ſaw it, and the whole face of the hillock quite full of large worm holes; when it is wet upon the land, it has the appearance of ſomething in a ſtate of fermenta-

tion. I ſhall be glad if this may help to more ſatisfactory conjectures. I am," &c.

A good road led me over a hill, poor and naked, not a ſingle ſtarved ſheep upon it, except a few at the bottom, ſo weak as to make me think that it was not in their power to ſcramble to the top. On the other ſide of the hill is the farm of *Pennan*, on a declivity, but not ſo ſteep as to prevent the operations of the plough. *James Miln*, the tenant, on a nineteen years leaſe, has done wonders. Not an inch of the ground but what was brought in by the plough, or by ſpade-work, where the plough could not reach. His crops of corn ſurpriſed every one, and his paſture was fine. Yet, inverting his plan, I found him ploughing up every thing, and ſcourging the child of his youth. But he had reaſon on his ſide. His leaſe was near to a cloſe; and as his landlord, the Earl of Aberdeen, ſeemed backward in granting him a new leaſe, he was reſolved to make the moſt of it for his own intereſt. Improving tenants like Mr Miln ought to be kindly treated. If they have improved the

farm,

farm, ſo as to give a high rent, they ought to be preferred at lower rent than a ſtranger will give. This, I ſay, is the intereſt of the landlord, however indifferent he otherwiſe may be to his tenant's proſperity. A tenant will be extremely ſhy of laying out much money upon the improvement of his farm, if he knows that it will be laid open to the higheſt bidder. But he will lay out liberally, if he can truſt to his landlord's benevolence, that, at the end of his leaſe, he will be kindly treated, in proportion to the improvement he has made upon the land.

A neat houſe of one floor, on the point of a peninſula fronting the bay of Pennant, the ſea waſhing the rock on which the houſe ſtands, an incloſure of 8 or 10 acres fenced with a ſtone wall, the entry ſecured by a good gate; not an office but one in the corner of the incloſure, better done up than the houſe itſelf; the group was a curioſity that puzzled me to underſtand the intention of it. It is called *Pennant Lodge*, where the proprietor, the Earl of Aberdeen, amuſes himſelf in ſummer.

I touched next at *Muireſk*, the property of *Alexander Dirom*. Fame, often deceitful in proclaiming too much, has not told one half of what is performed here. The firſt field I came upon was under barley with graſs-ſeeds. The ſoil is light and lively, lying on the ſide of the river Diveron. Its appearance, and of all the other fields on the low ground, marked ſtrongly the effects of a ſuperior cultivation; and although there was nothing new in the manner, yet, in the execution, more neatneſs appeared than is commonly met with. But, to avoid repetition, I haſte to give a view of a capital improvement on the hill ground. It is a dry, free, deep ſoil, that rather inclines to loam than to gravel. But what is very ſingular in this country, not a ſtone that can give any impediment to the plough; yet ſo mean is its appearance, that I am certain that not a man from my country would ever think of cultivating it. But Mr Dirom has thought of it, and with ſucceſs. It is opened in Auguſt, September, or October, as time can be got from more neceſſary operations. A furrow is made as deep as four

four ſtout horſes in a ſtrong plough can manage. The furrow ſlice that is raiſed is turned well over, in that ſtate to lie till next autumn, when a complete harrowing is given. A diagonal ploughing ſucceeds upon the firſt rain, the furrow as deep as formerly. Mr Dirom's reaſons reſpecting diagonal ploughing, are, that, by a ſlant direction, the plough divides the former furrow ſtill more equally, pulveriſes the ſoil, and tends to level the ground more than a direct croſs ploughing does. In this ſecond ſtage it remains till the next year in autumn, when after rain it is harrowed freely, and reduced to a fine mould and ſmooth ſurface. A third ploughing follows, with a deeper furrow than the former, which can be eaſily done by means of the free mould and ſmooth ſurface. The plough now goes in the line by which the ridges are to be formed. In this ſtate it remains till the ſummer following, when it is thoroughly harrowed and limed at the rate of one hundred Banffſhire bolls, they are equal to fifty bolls Linlithgow barley meaſure. The lime is harrowed in,

the

the ridges ſtraighted 15 feet broad, and another furrow given, but not ſo deep as the former. It lies in that ſtate till ſpring, when it is ſeed-furrowed, which turns the lime up, and mixes it with the ſeed; and the mixture is made more complete by harrowing, which finiſhes the rotation. Firſt crop oats; ſecond peaſe; third oats with graſs-ſeeds. Barley has been tried once and again, but unſucceſsfully. By this method the more diſtant parts of the hill are improved. This ſagacious farmer, anxious to complete the improvement of the muir, carries to the nearer parts of it, the ſecond year of the fallow, all the dung that can be ſpared from his low farm, ſows turnip upon that part that is dunged, which, by feeding cattle, makes a fine return of manure for the next year. The turnip makes a fine preparation for oats and graſs-ſeeds. The progreſs of cultivation is thus quickened, and the whole muir will be ſoon brought into order. By the firſt method, 20 to 25 acres are improved yearly; by the ſecond from 7 to 10; and by folding cattle and ſheep 5 acres; to the laſt lime is always given before commencement of the

the teathing. By theſe various modes of improvement, this ſpirited cultivator makes haſty ſtrides to complete the hill and muir ground. Five years are allotted for hay and paſture. The fifth year a compoſt of earth and lime well mixed is ſpread upon the graſs with the aid of a little dung. Oats the firſt crop, then peaſe, third barley and graſs-ſeeds; for barley can now be depended on. A quantity of hay in ricks ſurpriſed me. It appeared to be a weighty crop. The crops on this hill, in all the different ſtages of its improvement, were far above the ordinary rate; the more remarkable, conſidering the drought of this ſeaſon. It was not the quantity of ſtraw only, but the quality of the grain that aſtoniſhed me. As the oat crop was ripe, I pulled ſome of the heads, and carried them home with me; and the grain, upon compariſon, was of ſuperior quality to what grew in the Lothians. I may go farther, and aver, that, in ſhape and kernel, they were exceeded by very few.

The following is a ſtate of profit and loſs by the improvement on the muir.

One

One acre, rent originally 6 d. *per* year, for ſix years, is	L. 0	3	0
Expence of ploughing, &c. 3 years, before a crop is got, 5 times, and as many harrowings, 5 s. *per* time	1	5	0
Fifty bolls Linlithgow meaſure of powdered lime, at 1 s. 4 d.	3	6	8
Carriage of ditto, 12 ſtatute miles from Banff, if hired	3	6	8
	L. 8	1	4
Annualrent for outlay of money - - -	0	18	8
Ploughing for 2d and 3d crops	0	10	0
Seed for three crops -	1	10	0
Full coſt	11	0	0

Contra Cr.

1 crop, 5½ bolls *per* acre, at 10 s.	L. 2	15	0		
2 ditto, peaſe 4 bolls, at 10 s. -	2	0	0		
3 oats, 6 bolls, at 10 s.	3	0	0		
				7	15	0
Balance againſt the improver				L. 3	5	0

Surely

Surely Mr Dirom has beſtowed his labour to good purpoſe, when all the expence laid out upon an acre is refunded to him in three years, except L. 3 : 5 : 0, and when he can leaſe that acre at 8 s. yearly.

N. B. The ſtraw is allowed to compenſate the expence of reaping, &c.

This gentleman is too intelligent to think of making profit as a mere farmer. His plan is to give leaſes as ſoon as his land is improved; and he purpoſes to let leaſes as follows. One hundred acres of improved land deſcribed above may give L. 40 of rent. It is to be divided into eight equal parts; oats, peaſe, and barley occupy the firſt three diviſions; the other five are in graſs, two cut for hay, and three paſtured. Before a paſture diviſion be broke up, give dung, to be followed with the rotation above mentioned, namely, oats, peaſe, and barley. But, if the ſoil admit of it, inſtead of peaſe the ſecond crop, take turnip with dung. This rotation may be carried on with four horſes, or rather with two horſes and two oxen. A diligent farmer, he

thinks, may pay the rent, live comfortably, and keep his ground in good order.

A method for embanking againſt water I remarked here, cheap as well as effectual. The Deveron having made ſeveral breaches on its banks, led to the following plan. Beginning at the loweſt part, where the bank had been encroached on, lay down fauch, allar, or other trees, or both, along the ſide of the river, with the branches pointing down the river. Proceed upward with trees of the ſame kind, ſo as that the branches of the trees next laid ſhall cover the roots and ſhanks of thoſe already laid; and ſo on, as far as the bank needs reparation, taking care to mix the ſhanks, and that the roots be in contact with the bank. Twiſt the branches of the trees, and intermix them; cover them with ſmall land ſtones, and fix them with piles drove into the ground. In the courſe of a few floods, the trees are ſo covered with earth, ſand, &c. as to form a ſolid maſs. The willows will grow up through that maſs, perhaps the allar, and ſtill add to its firmneſs.

The horned cattle and horſes are of the beſt kinds in that country, all in good order.

der. The implements of huſbandry are tolerably good. The dairy here is kept cool and in the neateſt order. The beſt proof is, that the butter, even in the heat of ſummer, is ſweet and firm. In general, I admire the quality and cleanneſs of the butter over all this country; and yet the price is very low. They ought to ſalt the butter, and ſend it to better markets.

Mr Dirom has a large plantation of trees of different kinds, which were eight to ten feet high when planted, to ſhelter which, he has taken the advantage of broom and whins: Many thrive well; others are cut over by the ground, and begin to give vigorous ſhoots. In a former ſurvey, I had occaſion to remark a ſingular inſtance with regard to oaks at Cheſter's in Tiviotdale *, and I am inclined to think that there is no better way of reſtoring ill thriving trees.

I cloſe my report of Mr Dirom's operations with mentioning a plant I ſaw in his garden. The ſtem was eight feet high, running to ſeed, but much foliage at the root. It is called Alpin horſe-graſs. This ſeed was brought from the mountains near Loretto, by the Dutcheſs Dowager of Gordon,

* See vol. 2. p. 387.

don, and grew luxuriantly in her Grace's garden at Huntly. General Morris favoured Mr Dirom with ſome of the ſeed, which produced the plant I ſaw. But, whether it will be a valuable addition to our graſſes, muſt be the diſcovery of time; for hitherto it has not been raiſed in ſuch a quantity as to make any ſufficient trial.

I was charmed with the valley of *Auchterleſs*. Some years ago it was a gravelly dry bottom, that would bear a horſe without dipping in the wetteſt ſeaſon. Some lucky improver thought of bringing water upon it, which was done with more ſucceſs than was expected. The water ſinking into the ground burſt the gravel ſurface, and made a deep ſoil, conſiſting of gravel and earth, fit for every ſort of vegetation. It is now, I think, among the beſt ſpots in that country. Its fertility ought to promote a general improvement; and yet improvements go on extremely ſlow. In ſome places, however, the ridges are ſtraighted, and the crops of oats, bear, peaſe, clover, turnip, were as good as might be. Why does not ſome patriot ariſe to ſet all a-going,

ing, for his own good, and for that of his country? A few ſpots, cloſed in with earth dikes and whin hedges, are marks of inattention, ariſing to ſtupidity, in a country where thorn hedges would thrive delightfully.

John Duff of *Hatton* poſſeſſes an eſtate of great extent, and of great capacity for improvements. This gentleman's huſbandry efforts are few and feeble, having in hand but a few incloſures round his dwelling-houſe. Being willing, however, that his tenants ſhould improve and thrive, he gives leaſes for 19 years certain, with the life of the incumbent tenant, if he ſurvive. And, in caſe of his death before the expiry of the leaſe, he may name any of his kindred for his ſucceſſor, at any time before he dies, who ſhall poſſeſs during his life. It is pleaſing to ſee the influence of ſuch leaſes on the minds and practice of ſeveral of the tenants. James Keith rents two farms, 200 acres each, the one arable, rented at L. 32, the other a ſtore farm, rented at L. 18. But, as both the farms are highly improveable from the nature of the ſoil, a dry bottom, and free

of

of ſtones, the tenant is willing to lay out money, and can afford it. I judge from what he has done, that both will be made valuable farms at the expiry of his leaſe. Lime is the only artificial manure here. It does wonders on this ſoil, and Mr Keith intends to make good uſe of it. To it he adds all the dung that can poſſibly be made from ſheep, winterers, and cattle fed on turnip in the houſe. Potatoes, too, enter into his plan. Powdered lime coſts 18 d. Linlithgow boll, the product of this country. It is carried ſix miles. This is an expenſive article. In his arable land, there are many fields with balks between the ridges. The balks are ploughed two years ſucceſſively, which rots the old heath or ſward. In the ſecond year the ridge gets the firſt furrow; and both lie in that ſtate till the third year; then they are ploughed, limed, and ploughed again for the ſeed furrow; oats the firſt crop, the ſecond peaſe, and oats again with graſs-ſeeds. In the mean time the ſtore farm is not neglected; and in a few years, inſtead of brown heath, it will get on a coat of green.

Watering

Watering is in great repute upon graſs that is four years old. Watering two years brings good crops, and totally deſtroys wild oats that peſter theſe fields. It hurts the ground to take more than the three crops above mentioned, though greedy farmers take two crops of oats firſt, then peaſe, and laſtly oats with graſs-ſeeds. Whins bruiſed in a fulling-mill, or by a roller, are eat greedily by horſes and horned cattle, and they will turn fat on that food. But, when employed in labour, it is obſerved that they ſweat much, which is evidence of the richneſs of the feeding.

Though I ſtudy brevity, I muſt not omit *Charles Barklay*. Ten acres of turnip in drills and broadcaſt, done by him, are exceeded by none in neatneſs of work and goodneſs of crop. He uſes the old Scotch plough, with a number of horſes or oxen, many more than what are neceſſary. But reformation never comes all at once. A few years more will probably introduce the practice of two horſes, or two oxen only, without a driver.

I haſtened to ſee the great improvements carrying on at *Premnay* by Mr *Gordon* the proprietor, a young gentleman of amiable qualities, accompanied with an eminent mechanical genius, diſplayed on many inſtruments of huſbandry, a threſhing machine, a waggon with three wheels for carrying lime from Aberdeen with oxen, carts, ploughs, rollers, ſtrong brakes and harrows. Twelve hundred acres of land in a hilly country, a thouſand of it arable, muſt be allowed to be an arduous undertaking, conſidering that, home dung excepted, his only manure is lime imported from Sunderland in England, or from the Frith of Forth, landed at Aberdeen, and carried 18 computed miles. Yet we find this young gentleman's ſpirit, activity, and ſtrength of mind, equal to the undertaking. Add the expence of 3 s. 6 d. the boll, to which the price is advanced, on pretext of the war; yet in one year he hath brought home a thouſand pounds Sterling worth of limeſhells. His method of carriage is ingenious, and the moſt frugal that can be contrived. His horſes kept at Aberdeen bring the lime half way, and are met by oxen

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that draw an empty carriage. The oxen return with the loaded carriage, and the horſes carry on the empty carriage to Aberdeen, all in one day. I wave his general ſyſtem of agriculture, as it differs little from what is the moſt approved, and proceed to what is in any degree new or uncommon. Mr Gordon's obſervations have led him to prefer lime on the ſurface of fallowed land after the laſt furrow is given before winter, which is carefully harrowed into the ſoil. He ſows oats in ſpring on the winter furrow, which are perfectly covered by harrowing. Seed is thus ſaved, as none is buried, being ſown on a ſmooth ſurface. Lime, he ſays, does well on the ſward, where the land has been previouſly manured with a compound of earth and a little lime. The lime lies on the ſurface two years, by which time it is waſhed by rain into the roots of the graſs. It is true that the profits of a crop is poſtponed for a year; but he ſays that the greater birth of graſs, by means of the lime, will do more than anſwer the year's intereſt of the money expended in liming; and that, when the lime lies two

years, the crop is better than when the land is opened after the firſt year. This may be right; but yet I cannot help thinking, that, all things conſidered, the beſt returns from lime are got by mixing intimately powdered lime with well pulveriſed earth; and it is of conſequence to a farmer who pays ſo much for lime, to have it managed in the moſt advantageous manner.

When we hear of 40, 50, 60, or 70 acres of turnip in one man's hands, we are apt to be ſurpriſed; but our ſurpriſe will be much greater when we are informed, that this gentleman extends his crop frequently over 120 acres, raiſed by moſs or peat aſhes. Moſs or peat in heaps, and dried for burning, will, if of a good kind, yield rich aſhes, and in great plenty. Three carts-full are laid on an acre, ſuch a cart as holds five Linlithgow bolls of lime ſhells. Upon the drill plough a large box is fixed for holding the aſhes, which by a pipe or funnel are conveyed into the furrow, and upon them the turnip ſeed is dropt; and both are covered with a harrow. The machine, drawn by one horſe,

drills

drills two rows at once, four feet aſunder. On infield land, naturally a good deep ſoil, the aſhes do well, as they promote vegetation quickly, and the rough leaf comes early, which prevents any miſchief from the black fly; and when the turnip are once ſet agoing, the fertility of the ſoil carries them on to perfection. But poor land requires a large quantity of aſhes, otherwiſe no tolerable crop can be obtained. This was made evident by experience. Trial being made with the quantity of aſhes above ſpecified on poor land, the ſeed ſprouted, and the rough leaf ſoon followed. But the ſubſequent progreſs was ſlow, and the turnip roſe to no ſize. To this experiment Mr Gordon reſolves to adjuſt his practice, holding that lime or dung is neceſſary to raiſe turnip, and that peat aſhes will not anſwer but for haſtening the vegetation in a rich ſoil.

He tried the following manures for raiſing turnip on good ground; ſtable dung, ſheep dung, pigeon dung, oil-cake, kelp, aſhes, laid in the rows. The aſhes produced the beſt crop, pigeon and ſheep dung next, kelp no crop, nor were the aſhes

aſhes improved by a mixture of kelp. But what is remarkable, and what confirms the opinion above given, is, that of the ſubſequent crops, that which followed the turnip raiſed by the aſhes was the worſt.

Whins are in high regard with Mr Gordon for food to horſes, ſheep, and oxen. He has erected a wheel turned round with water, that moves a number of ſtampers ſhod with iron, by which the whins are bruiſed quicker and better than by any of the ordinary methods. A whole winter, when fodder happened to be ſcarce, twenty-five horſes were maintained on whins. Ever ſince, a ſtock of whins are regularly preſerved for horſes; and every year, in ſpring, fire is ſet to a large field of whins, from which ſpring a great abundance of young ſhoots for winter food to ſheep. His flock is much improved by a mixture of good rams from ſeveral parts of Scotland.

As thorns do not thrive on a mean ſoil or a bleak expoſure, Mr Gordon, in place of fencing with thorns in ſuch places, makes two parallel ditches, and fills up the interval with the earth raiſed out of them in the

the way of a bank, which is filled with ſweet briar, a beautiful fence. I ſhould imagine that whins would anſwer better, being an evergreen.

Mr Gordon's way of working his oxen deſerves to be imitated. Four of them are given to the charge of one man, both for feeding and working. Two are yoked in the morning, and go in the plough ſix hours. The man dines at 12, yokes the other two oxen at one, and travels on till ſeven, which completes the day's work. The man both holds and drives. The oxen, without getting any corn, perform every farm work that horſes can do. Oxen, ſays Mr Gordon, are made by nature for long labour. They quickly fill the belly, as they ſwallow without chewing; and they chew the cud when at work, which preſerves them from being ſoon fatigued. In winter the four oxen are yoked together, and go from nine till three. Till I found the contrary, by the foregoing inſtance, I did not think that oxen were capable of ſo much fatigue in the heat of ſummer. They ought to be fed

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at leaſt with red clover, of which an ox can ſwallow many ſtone weights at a meal.

A fine ram from Dr Hay in Tweeddale, that carries long wool, was got lately for improving his ſheep. There is a great demand at Aberdeen for ſuch wool. But ſnow is ſevere on ſheep of that kind; and much ſnow falls here, and lies long. Mr Gordon houſes his ſheep in ſtormy weather, and feeds them with turnip. In more moderate weather, they are kept in flakes covered with broom. By theſe, and other precautions, Mr Gordon hopes to protect ſufficiently an improved flock. White wool without ſmearing draws 15 d. the pound.

Mr Gordon, after moſt extenſive and laborious improvements, is now preparing to finiſh his plan by providing good tenants. To that end, he is in the courſe of erecting farm-houſes and offices. The houſes are neat, and covered with blue ſlate; a great ornament in a bare country, that will attract choice of tenants.

In my way to *Monymuſk*, I paſſed through the valley of *Alford*, much chequered by various

various objects, clumps of old trees ſurrounding the houſes of gentlemen, and ſome young plantations, here and there improvements going forward, and a few incloſures, while other parts remain in the ſtate of nature, naked and forlorn. The neceſſity of being home to my own harveſt, left me no time to wait on the gentlemen improvers in this valley. The only atonement I can make is to add their names to the liſt of patriots. Mr Forbes Leith of Whitehaugh, Mr Innes of Breda, and Mr Farquharſon of Haughton; they are leading examples, and promote huſbandry among their tenants.

Monymuſk is a poliſhed place, advantageouſly ſituated on the river Don. The family farm, highly improved by the late Sir *Archibald Grant*, and ſtretching along the other ſide of Don, is a conſiderable addition to the landſcape. This farm of 160 acres has very little level; yet, as the ſoil is light, with a free bottom, water does not ſtand upon it. The culture of this farm is equal to any I ever ſaw, and every crop excellent. The preſent Sir Archibald,

bald, who had been long in the army, has no notion of beſtowing his whole time upon huſbandry. Confining his operations to a few incloſures near the houſe, he has let the family farm to a young man, who has a good ſtock, for L. 125 rent, on a leaſe of 19 years. As this family farm was ſtocked with many implements of huſbandry of various kinds, which the late Sir Archibald procured, they are all to be ſold by auction, which will be a means of introducing good farm inſtruments in that part of the country; as farmers, on ſuch an occaſion, will purchaſe what otherwiſe they would give themſelves no trouble about.

Cows, the product of the beſt country breed, mixed with that of Holderneſs, give plenty of good milk. Two long horned cows of the Lancaſter kind, are to be put away. Cows of that kind never give ſatisfaction.

There never exiſted a man of more zeal for promoting huſbandry and manufactures than the late Sir Archibald Grant, though under great diſcouragements in the former part of his life; and there remains

laſting

laſting monuments of both, eſpecially of the former. He was, in particular, the greateſt planter of his time. More than 3000 acres, moſtly hill and ſteep banks, are covered with trees, chiefly of fir, now of immenſe value in a country ſcarce of wood, and even of firing. The delightful ſpot, termed Paradiſe, is far above the reach of my pen. What fall more properly within my line are the trees, the talleſt and ſtraighteſt I ever had the pleaſure of ſeeing. One pine tree in particular, four feet in diameter near the root, tapering equally the whole length, meaſured from the root to the top 90 feet. Some of theſe trees Sir Archibald planted with his own hand. Here is alſo a hop garden, the fruit, as I was told, of as high a flavour as any in England. The hops, in part of this garden, were much too cloſe together, which prevents fruiting for want of ſufficient ventilation.

I take leave of this place, after giving a ſhort account of Sir Archibald's ſtock of ſheep on a hill farm belonging to him. They amount to 400, all of the Tweeddale breed, a proper kind for this country.

But I dread that they will be hurt by a breed of the Bakewell kind, that was lately put into the flock. Salving is now introduced, as, before it was uſed, the wool came off in winter, and the ſheep were unhealthy in ſpring. They now thrive, and are ſooner in order than formerly. With eight pounds butter, Engliſh weight, mixed with one pint of tar, 25 ewes are ſalved, and more is given to the hogs. This is an important leſſon to ſtoremaſters in this country. The wool was improved both in quantity and quality; nor did the ſalving leſſen the price.

John Bookleſs was ſome years ago brought from Eaſt Lothian by the late Sir Archibald, to be the overſeer of his farm. Sir Archibald rewarded his ſervices by putting him in poſſeſſion of two farms, one of 140 acres, whereof 40 were planted with firs ſix years ago, the rent L. 50 Sterling. Bookleſs has undertaken the care of this plantation, for which he is to have half the value of the trees at the cloſe of his leaſe, which is given for 20 years certain, and during his own and his wife's life, if they ſurvive the 20 years. The other farm, con-

containing 350 acres, is rented at L. 100. Bookleſs has been well rewarded, and ought to be grateful. He ſets out well, and ought to be diſgraced if he exert not every power of body and mind upon this farm. I am hopeful that my countryman will give an example of well conducted huſbandry to the tenants around him, particularly of good tillage, which is much wanted in this diſtrict. So violent was the heat at the time of my ſurvey, that a very forward field of turnip belonging to Bookleſs, and in great order, ſuffered much by it. The leaves were bent to the ground before 11 forenoon, and did not riſe till the evening.

Mr *Robert Young* poſſeſſes the farm of *Tombeg* belonging to Sir Archibald, upon a leaſe of 19 years, with the addition of his life and two years more. It is all a muir, and large ſtones ſcattered on the ſurface. It was a bold undertaking, yet Mr Young is reſolute. He began with building a houſe and offices, for which he was allowed L. 80, paying only 5 *per cent.* yearly during his leaſe. The ground is purged

purged of ſtones, which are employed upon incloſing. Lime is what he greatly depends on. Fifty bolls powdered lime are allowed for an acre; the coſt, carriage included, is L. 7, to which 40 s. may be added for carrying off the ſtones, beſide the expence of tillage. This is a great ſum for ſo mean land; yet Mr Young perſeveres. Lime laid on in ſummer is ploughed in before winter, and oats are ſown on the winter furrow. After two crops of oats more, the laſt always the beſt, the land is dreſſed and dunged for turnip; then bear with graſs-ſeeds, 12 pounds red clover, 4 white, and 2 buſhels ryegraſs. The graſs crop is ſurpriſingly good. When the land is found not to require dreſſing by fallow or turnip, 40 cart loads of dung are laid on after the third crop of oats, and upon three furrows bear is ſown with graſs-ſeeds. This rotation is ſimple, and ſome of his neighbours have adopted it.

As I paſſed along on the oppoſite ſide of Kemnay, Mr *Burnet*'s herculean labour of purging his land of ſtones, equal to that about Aberdeen, caught my eye. I drew near

near to get a full view. One of his methods for diſpoſing of the endleſs number of ſtones dug out of the ground by ſpade, mattock, and plough, was to incloſe with them into maſſy walls, more ſimilar to a fortification than to a fence. The baſis is four or five feet broad, raiſed to a conſiderable height, tapering gradually to the top about two feet broad. If my information be right, Mr Burnet has greatly improved his eſtate, which is evident from his getting thrice the rent the land gave formerly.

Mr *Baron Gordon* of *Clunie*, who formerly was more devoted to the ſtudy of the law than to huſbandry, has now become a champion for the latter. He may juſtly be termed an eleve of Lord Adam Gordon, to whom his converſion is probably owing; and he has profited by his Lordſhip's inſtructions, for he is doing wonders at Clunie. The old dwelling-houſe is reformed and elegantly furniſhed, with the addition of proper offices, a barn and ſtackyard, executed to perfection upon Lord Kaimes's plan, with a byre, cart-houſe,

houſe, and granary below. To clear the ground of ſtones is a herculean labour, like that of Mr Burnet's, or of the land round Aberdeen. Yet our new convert is not diſcouraged with the expence. Many a rood of ſtone wall form the incloſures, with ſtrips or belts on the out ſides, eſpecially on the quarter whence the ſevereſt ſtorms of wind come. Here the progreſs of ſubſtantial improvement has been as rapid as any I have met with in my travels. The baron with-holds no expence neceſſary for giving a new face to his eſtate, and conſequently for ornamenting that part of the country. One field of thirteen acres drilled turnip is done according to the truth of art. The ſurface was unequal, the ridges high, and twiſted different ways; yet every obſtruction is overcome, the ſurface made level, the ridges ſtraighted, and directed according to the lying of the ground, limed ſo high as L. 7: 10: 0 *per* acre, carriage included, dunged in the drills with a compoſt of earth and dung, a larger ſhare being given to the parts that were bared by levelling down the old crowns, and at laſt finiſhed by hoeing both with

with hand and plough. Bear ſucceeded the turnip laſt year, and the appearance this year of graſs from ſeed ſown with the bear, is brilliant, 12 pounds red clover, 5 white, 3 ribwort, 1½ buſhels ryegraſs. The baron thinks it too thin, and means to give more ſeed afterward. Planting trees is a yearly work, as likewiſe fencing the banks againſt the inroads of the river.

A ſet of the fineſt horned cattle I ever ſaw are employed in the baron's huſbandry. They work in the plough by pairs without a driver, and the harrow and wain is familiar to them. In winter they are fed on ſtraw and turnip; hay is given when they work twice a day, when the day is long. I am aſſured they are always in good order. After what I have ſaid, I need not mention the inſtruments of huſbandry, which we may be ſure are the beſt of every kind.

I finiſhed my ſurvey of this county with looking into an extenſive plain belonging to Mr *Duff* of *Eight*, and Mrs *Udny* of *Coulter*, in which I ſaw, for the firſt time, ſometimes 10 oxen, ſometimes 12, yoked

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to a plough, but not all drawing at one time. To increaſe my wonder, I ſaw this long train of oxen ploughing a ridge not much above twice the length of the draught, the foremoſt oxen turning at one end of the ridge when the plough was not far advanced from the other, and on the wet ground too. Can any thing be more ſtupid? It is much eaſier to conceive than to deſcribe what a ſpot of work ſuch a draught will make, one ox pulling, one ſtanding, one drawing back, &c. I pity the driver, if he does his duty; for he muſt ſuffer more fatigue, by running conſtantly from the one to the other, than any one ox can do, or the whole together. Yet I am apt to believe that an act of parliament againſt ſuch a draught might raiſe an inſurrection, as the Iriſh act did, diſcharging horſes from drawing by the tail.

I cloſe this report with a few general remarks, to rouſe, if poſſible, poſſeſſors of land, at preſent indolent, to follow the example of the ſpirited improvers above mentioned. The ſoil, in general, of this county, even what a ſtranger would pronounce

to

to be incapable of improvement, muſt have ſomething peculiar in its nature. The moſt wretched muirs in appearance, with tolerable culture and lime, will produce both corn and graſs, ſo as to anſwer the labour. The foregoing report is fraught with inſtances. The muirs here are certainly much ſuperior in quality to thoſe in the Lothians. The former, after dreſſing, takes on a cloſe ſward, and the graſſes are of the beſt kind. But I have not ſeen a ſingle acre of the latter, however well cultivated, dunged, and limed, that ever ſwards or bears good kinds of graſſes. By the time the graſs is three years old, nothing remains but a tuft here and there, and that of an indifferent or bad kind. Neither are the crops of corn tolerable, but by a regular ſupply of dung. I urge this fact to excite the proprietors of ſuch land in Aberdeenſhire to lay out their money and time upon it. Though Aberdeenſhire is a high country, it is not mountainous. The valleys are extenſive, and capable of improvement at a moderate expence. In the extenſive diſtrict of Buchan, above 20 miles ſquare, Stormont is the only hill in

it. No ſnow lies within ſeveral miles of the coaſt; the climate is friendly to corn, no more rain falling than is neceſſary for vegetation; nor does rain abound in the more internal parts.

This county is populous, and is turning more ſo daily. The people are ſober and induſtrious, at the ſame time ſufficiently docile. Wages for men ſervants are moderate; for women, they are much higher than in the Lothians, owing to the extenſive manufactory of ſtockings at Aberdeen, which has taught all of them to knit; and ſo induſtrious they are, that, in travelling the high road, they knit as buſily as at home.

The horned cattle, in general, are of a good kind, but ill managed. Many are gelded too late; and all are worn out with work and age before they go to the grazier. Such cattle are long of fattening, and their fleſh is often bad. The poverty of the paſture here is the bane of improvement, as likewiſe the number of cattle that are kept. The poor people love to ſee a large ſtock, without conſidering that they loſe the intereſt of the price they paid for their cattle, or of the coſt for rearing them; for a ſtarved beaſt will never

ver give more in a market than was paid for it, and frequently not even that. Animals ſtarved produce no dung, and the ground conſequently produces no corn.

The native breed of ſheep is diminutive, and no wonder; for the cuſtom is to tether them; and yet I could obſerve no graſs till I alighted and put on my ſpectacles. Lambs, too, are tethered as ſoon as weaned. Can any good ariſe from this practice? Yet gentlemen, who otherwiſe conduct their farming affairs well, tether ſheep when fattening for their table, upon good paſture indeed; and they aſſert that the animal fattens better than when at liberty. It is my opinion, that neceſſity at the bottom is the cauſe of tethering, as they have no incloſures that will hold in ſheep. But tethering is not confined to ſheep only. Horſes, in general, are tethered; and I have ſeen horſes tethered upon clover fit to be cut for green food, and at the ſame time expoſed to a hot ſun, and in a manner devoured with flies. This abſurd practice would be altogether inexcuſable, were it not ſanctified by inveterate practice. It is true, there are few ſufficient incloſures in this

this country; but, inſtead of an excuſe, this affords a new ground of charge againſt gentlemen. Winter herding has never been in force here, a clear proof that improvements are going on with no ſpirit; for to allow cattle to go at random, is deſtructive to new made hedges, to clover, to young graſs, and to every improvement. Thirlage to mills is another obſtruction to farming, eſpecially thirlage of *omnia grana creſcentia*; yet I find no ſteps taken to aboliſh that odious ſlavery.

Would the gentlemen of Aberdeenſhire think of giving long leaſes to men of ſkill and ability, as ſome few gentlemen are doing, the face of the country would be ſoon changed, and the county become rich as it is populous, and add much to the ſtrength of the kingdom.

BAMFSHIRE.

I Entered this ſhire at the eſtate of Mr *Garden* of *Troup*, and was entertained agreeably with his modern elegant houſe, ſituated in a plain of excellent land, not far from the bay of Pennant. The incloſures around the houſe are under high cultivation, and impreſs a ſtranger with agreeable ideas of the county. The trees are too near the ſea to afford ſhelter; but the ſurrounding high grounds afford a comfortable ſhelter from the ſea ſtorm. The farm-offices are complete, and well contrived to anſwer their deſtination. The fences on the good ground are ditch and hedge. The thorns thrive to admiration, and exceed all others I have yet ſeen on this coaſt. The fences made with ſtone are durable; and ſtones are in plenty.

Mr Garden has the honour of leading the way in this country of improving his lands. His paſture and hay fields, corn

and

and green crops, are all of them good. I enter into particulars. Where the ſoil is clay, ridges are formed 12 feet broad, and gathered twice to keep them dry. Sea ſhells are ſpread on the ſward from 200 to 300 bolls wheat meaſure on an acre, more or leſs according to the nature of the ſoil. Theſe ſhells are not pure, being mixed with ſand, perhaps a third. The paſture graſs is improved conſiderably when the ſhells are allowed to lie on the ſurface three years. Oats the firſt crop. One boll, Linlithgow meaſure, of ſeed on the acre; return from ſix to nine. The ſecond crop peaſe or oats again. The peaſe are the green runcival, which grow luxuriantly, and give a deal of ſtraw, which falling down meliorates the ground; but they yield not much fruit. The peaſe are given to hogs and horſes. Some are ſold at a moderate price to the country people for pot uſe. Turnip is the third crop, the ground being well dreſſed by frequent ploughing and harrowing. Furrows are opened in ſtraight lines, with intervals of three or four feet, as the ſtate of the ground requires. Dung is put into the furrow, and covered by the next ploughing.

ploughing. Inſtead of barley and graſs-ſeeds, Mr Garden, for enriching the land, ſows peaſe after the turnip, a practice without example, ſo far as I know. Three meliorating crops in ſucceſſion, namely, peaſe, turnip, peaſe, muſt pulveriſe and enrich the ſoil greatly. So it appears from the following crops of bear and graſs. Three firlots of ſeed bear to an acre return 10 bolls; hay and paſture, as much as can well ſtand on the ground.

A muir of 400 acres incloſed was planted with firs, which ruſhed up quickly. Through the whole plantation the worſt are cut down to make room for other barren trees, which, protected by the firs, thrive exceedingly. There cannot be a better method for raiſing trees in a cold and ſtormy country.

Lime was formerly the manure here, from 100 to 150 bolls *per* acre; but now ſea ſhells are preferred. This gentleman is not a hungry ſteward. He deals out manure with a liberal hand, the ſure way to ſucceed. Mr Garden is kindly to his tenants, but chiefly to thoſe on this eſtate. He accounts them as part of his family,

and

and treats them accordingly. No leaſe he gives is ſhorter than the tenant's life. Moſt of them are for 19 years, and the life of the tenant in poſſeſſion at the expiry of the 19 years. He makes no difficulty of giving two nineteen years and a life, to enterpriſing tenants who can command money for improvements. The rents are moderate, the beſt land from 10 s. to 12 s. *per* acre. The average rent of infield and outfield is from 4 s. to 6 s.; and many acres, very capable of improvement, are rented at 20 d. No farm is let leſs than what can give full employment to a plough; and many are of 200 acres. It is rare to find a tenant here who is not thriving. They are extremely defective in one article. Though the roads are good, their horſes and wheel-carriages are deſpicable, notwithſtanding the encouragement they meet with; beſides the ſtriking example they have before their eyes of weighty draughts drawn every day by the landlord's oxen and horſes, even in ſteep roads.

Storms of ſnow, hail, and rain, are frequent in winter; but kindly moderate weather the reſt of the year.

Servants

Servants wages are higher her than in Aberdeenſhire, owing, I preſume, to a defect in population; a houſehold ſervant from L. 5 to L. 6 a year, day-labourers 8 d. in winter, and 9 d. in ſummer.

I took a view of Mr Garden's tenants, and was delighted with the appearances of turnip and clover on every farm, well managed; corn crops on the ground clean and good; every perſon buſy in cutting down an early harveſt. I remarked alſo old ſtacks of corn in every yard ſet upon pedeſtals: Sure ſymptoms of a thriving tenantry. In a word, improvements are making a rapid progreſs here, which in time will make a vaſt addition of well paid rent, procured not by ſqueezing, but by giving comfort and proſperity to the tenants.

The marches of this eſtate may be accurately known from the poverty of the neighbouring lands, and of their poſſeſſors; mean houſes, no neatneſs about the doors, nor cleanneſs within. A few miles farther on I met with cultivated fields well incloſed; cattle on the paſture, and reapers cutting down corn. This was alſo a

farm of Mr Garden's, called Crove. He gave a leaſe of it to Patrick Duff of Whitehill, late provoſt of Banff, to endure for the tenant's life, 38 years after, and the life of any perſon that ſhall be named by the poſſeſſor, commencing at the expiry of the 38 years. The farm contains 140 acres arable, and 40 of muir; and the rent is no more than what was paid by the former tenant. As this farm is within reach of the ſea, Mr Duff, in incloſing, raiſes a perpendicular earth-dike between his hedges and the ſea, in order to protect them from the ſtorm; and the mode proves effectual, for ſome of his hedges are already fencible. The farm conſiſts of various ſoils, on one ſide clay, on the other light and dry, with a free bottom. Yet his rotation is the ſame over the whole; turnip with dung the firſt crop, the next barley with graſs-ſeeds, two years hay, the aftergrowth paſtured, then wheat, which cloſes the rotation, beginning again as before with turnip. As Mr Duff's reputation as a farmer is ſufficient to influence his neighbours to follow his example, I cannot here avoid entering my diſſent againſt this

this mode of cropping. A crop of wheat at times may be ventured on light land; but it ought never to be a ſtanding crop in a rotation. Turnip is not leſs improper in clay land. In ſuch different ſoils the rotations ought to be different, which I have had more than once an opportunity to ſet forth in former ſurveys. And here I appeal to Mr Duff's experience reſpecting turnip upon clay ground, if he has not, when the turnip is got off, given two or more ploughings, harrowing and rolling frequently, to reſtore the ground to a proper tilth again; hence the impropriety of raiſing turnips on clays.

His method of ſubduing the muir is more ſkilful. What can be commanded at once is broken up with a hearty furrow; and the furrow ſlice is laid flat on its back, and lies two years to rot the heath. It is croſs ploughed the third year, the ridges are made ſtraight and harrowed the fourth year; a compoſt of dung and earth laid on before the ſecond week of June; lime is added, and the whole mixed with the ſoil by ploughing and harrowing; the ſtones are taken off, and turnip ſowed broad-

broadcaſt. Oats ſucceed with white clover and ryegraſs, paſtured 10 or 12 years. This method cannot fail to be ſucceſsful. Mr Duff reſembles here a tender parent, who nouriſhes and cheriſhes moſt the weakly child.

In feeding his bullocks in the houſe with turnip, cleanneſs is more attended to than common; and his cattle are always proportioned to the food, in order to carry them on till the market anſwers. The butchers of Aberdeen run upon his cattle, becauſe they are always fat. Hitherto his profit has been conſiderable; but his profit begins to leſſen, as in other parts of Scotland, in proportion to the number of feeders. Huſbandry loſes ſo far, but the country in general gains.

Mr Duff ſaves his turnip ſeed, and is thereby ſure of the kind. His method was new to me. Where the turnip is allowed to grow till the ſeed be perfectly ripe, it is devoured by wild birds, and much is loſt in cutting. Therefore, in a month before perfect ripeneſs, the turnip for ſeed are taken up, placed with their tops inclined to one another, and covered with

with ſtraw. It ripens in that ſtate, though perhaps not ſo plump as where the plant remains in the ground; but it ſprings, however, perfectly, and Mr Duff ſays he was never once diſappointed.

Houſes in the village of *Doun*, a mile from Banff, are increaſing in number; but, like all other neſts for ſmugglers, it is dark night with reſpect to huſbandry improvements.

Banff, the county town, has a ſea-port and ſafe harbour. The only manufacturer here of any note is Mr George Robiſon, who makes white thread for hoſe or ſtockings, to an amazing extent. He is alſo a partner in a company for malt-making and brewing ſtrong and ſmall beer. The malting and brewing offices are very capacious, and abſolutely complete. Their ſtrong ale and beer are fine and high flavoured; the conſumpt is conſiderable, and daily increaſing. I heartily wiſh them ſucceſs for the ſake of huſbandry, but ſtill more for the ſake of health, as a cup of ſtrong beer is a reſtorative to a working man

man much more ſalutary, as well as nouriſhing, than ſpirits of whatever kind.

Salmon caught at the mouth of the river Deveron, near the town, is a lucrative article for export.

Small incloſures for the convenience of the inhabitants abound here. Clover, turnip, kail, meet the eye in every little cloſe, well cultivated, and the crop abundant. The product ſold to the town's people draws from L. 5 to L. 8 Sterling *per* acre. Mr William Fyfe, one of the preſent magiſtrates, leads the way in ſuch operations. His rotation is turnip, oats, clover, paſture; and he has ſometimes taken 300 ſtone of hay off one acre. His great defect is want of water. He and a neighbour are digging a well in a corner to ſerve for both. They have pierced more than 20 feet deep without appearance of water. They are reſolved, however, to perſevere as far as a pump can command, or a bucket. But they have no notion of ſinking down 300 or 400 feet for water to paſturing cattle, as, by a letter from Mr Arthur Young, I am informed is done in Kent,

and

and in the counties of Buckingham and Oxford *.

Here I meet again Mr *Dirom* of *Muir-eſk*, chief magiſtrate of this place, but upon new ground. A ſtrong natural genius for agriculture prompted him to take a farm from Lord Banff, chiefly with a view to raiſe a ſpirit for improvement in the neighbourhood. Lord Banff, fond to encourage this ſpirit, has leaſed to him the farm of Sandla for two lives, Mr Dirom's one of them. After the death of both, the leaſe continues 30 years certain, and, over and above, during the life of a perſon to be named by the poſſeſſor before expiration of the 30 years. Failing ſuch nomination, the leaſe ends with the life of the poſſeſſor. The farm conſiſts of 120 acres, rented at L. 70, the ſame that was paid 20 years ago by the former poſſeſſor. It was reckoned very high ; and probably was ſo in the hands of ignorant and indolent tenants. Fifty acres of it, lying on the ſide of the river, are of a fine loamy ſoil. The remaining 70 are upland, light, gravelly ſoil, riſing higher and higher till it

* See Mr Young's letter in the appendix.

it terminates in a real muir, covered with heath and whins. Our improver, like a man of judgment, made his firſt eſſay on the beſt part. When he entered upon it, the ridges were ſo high, that two tall men ſtanding in the oppoſite furrows could not ſee one another when the crop of corn was upon the ground. Nothing could be done more effectually to render this dry ſpot perfectly barren. The ground is levelled at a very great expence, cleared of weeds and of ſtones, formed into ſtraight ridges, and limed at the rate of 50 bolls powdered lime the acre, Linlithgow meaſure. Wheat was ſown, which returned ten bolls *per* acre; next crop oats; third turnip with dung; barley and graſs-ſeeds the fourth; then two years hay, and three years paſture; then wheat, oats, barley, and graſs-ſeeds for paſture. All this part of the farm is formed into regular incloſures with ditch and hedge; the hedges are now fully grown and fencible.

The upland was fallowed and thereby made clean, dunged and ſowed with barley and graſs-ſeeds; two years hay, two years paſture, the firſt year of which lime

is

is laid on as above. The ſucceeding crops are oats, peaſe, barley, and graſs-ſeeds. This gentleman, turning his attention to the improvement of his eſtate, after having, in the courſe of 15 years, been amply repaid of the expence of improvements made on this farm, let it at a conſiderable advance of rent; and the ſubtenants are bound by articles, the obſervance of which prevents the farm from being run out. They are good farmers, and, from every appearance of their management on the farm, I think they will thrive.

At Banff begins the Earl of Findlater's eſtate; and all the way to Cullen, 12 Engliſh miles, the fields reſemble a garden; at leaſt, more ſo than they reſemble the common run of eſtates in that country. The late Earl was the operator of all. His ſkill in farming, his induſtry in the education of young men to be farmers, the houſes he built for them, the judicious conditions of his leaſes, the premiums he gave to direct their induſtry; in ſhort, every thing that can be contrived to make a flouriſhing eſtate, was ſet on foot by that nobleman. But hark! the cock does crow

me hence. To enter into particulars is at this time impracticable, when my harveſt waits for me at home. I muſt therefore finiſh this year's ſurvey, with reluctance, at the moſt intereſting part of it *. But there is one article with regard to manufactures that fall immediately under my eye, which alſo was encouraged by the Earl's friendſhip to, and countenancing the firſt promoter of it, a Mr Robiſon, uncle of the preſent gentleman of his name, who now carries on the manufacture in its preſent flouriſhing condition. I cannot, nor ought to neglect it; becauſe it is highly connected with, and encourages agriculture in the country; and that is, the thread manufacture carried on by Meſſrs George Robiſon and company, vended for the moſt part at Nottingham and Leiceſter in England, for making thread ſtockings. The quantity made annually is computed to amount in value to about L. 40,000, and in ſome years to L. 50,000 Sterling, chiefly made from Dutch flax, of which are imported yearly 3500 mats, or thereabout, each mat containing 100 pound weight, the price L. 3 : 5 : 0. It is all heckled at

* See vol. 4. p. 54.

at Banff, and between 50 and 60 hands are employed in that work, beſide thoſe employed in beating the flax in mills that go by water. Some home flax is uſed, and ſome from England; but the quantity is inconſiderable, if compared with that from Holland. There are upwards of 4000 women employed in ſpinning in Banff, Down, Cullen, Keith, Huntly, Fochabers, Elgin, and Forres, and the quantity of yarn amounts annually to about 150,000 ſpindles, which coſt to the company almoſt L. 10,000 Sterling. The doubling and twiſting the yarn is done at Banff, employing commonly 200 women and children. The company have a bleaching-field at Boynde, a mile weſt from Banff on the Earl's eſtate. It contains near eight acres, and is no more than ſufficient to bleach their own thread, in which operation there are employed upwards of 40 people.

Here is a ſhort account of a very extenſive manufacture that aroſe out of nothing not many years ago. The thread is all carried to England by land and ſea, at a very

very conſiderable expence, which would be all ſaved, were the manufacture of thread ſtockings completed at home. Why do we ſtop ſhort? We have every thing ready at home for the ſtocking loom, and labour is here cheaper than in England. Am I too ſanguine in my expectations, that Scotland may at leaſt ſerve itſelf in this article?

FINIS.

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